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A

GUIDE TO HEALTH

THROUGH THE

Various Stages of LIFE.

Wherein are Explained,

- | | |
|---|---|
| <p>I. The different <i>Degrees</i> and <i>Changes</i> of Age, the principal and inevitable Causes of OLD AGE, and finally of our Dissolution; with a Chronological and Historical brief Account of <i>long Lives</i> from before the <i>Flood</i> to this present Time.</p> <p>II. The <i>Nature</i>, <i>Properties</i>, <i>Qualities</i>, and <i>Influence</i> of <i>Air</i>. Of <i>Aliments</i>; the Choice of them; their Power upon Human Bo-</p> | <p>dies, with their good and bad Effects. Of <i>Sleeping</i> and <i>Waking</i>; of <i>Motion</i> and <i>Rest</i>; of <i>Retention</i> and <i>Excretion</i>; and of the <i>Passions</i> of the <i>Mind</i>.</p> <p>III. Of the <i>Definitions</i>, <i>Diagnosicks</i>, <i>Prognosicks</i>, and <i>Curative Indications</i>, both <i>Medicinal</i> and <i>Dietetical</i>, of <i>Acute</i> and <i>Chronical</i> Diseases incident to Human Bodies; with the <i>Nature</i> and <i>Use</i> of <i>Bathing</i> and <i>Frictions</i>.</p> |
|---|---|

The whole illustrated with useful ANNOTATIONS, methodically and succinctly digested, and confirmed by the Authority of the most celebrated Authors, both Ancient and Modern.

By BERNARD LYNCH, M. D.

Pugnandum tanquam contra Morbum, sic contra Senectutem.

CIC. de Senectute.

Optima quæque dies miseris mortalibus ævi

Prima fugit: subeunt morbi, tristisque Senectus:

Et labor, & duræ rapit inclementia mortis.

VIRG. Lib. III. Georg.

L O N D O N:

Printed for the AUTHOR, and sold by Mrs. COOPER in *Pater-Noster-Row*; Mr. MEADOWS in *Cornhill*; Mr. HAWKINS near the *Temple-Gate, Fleet-Street*; Mr. NEEDHAM near *Chancery-Lane End, Holborn*; and at Mr. JACKSON'S in *St. James's-Street*. 1744.



DR JOHN E. BARNARD

21
A
I have the honor to acknowledge the receipt of your letter of the 14th inst. in relation to the matter of the proposed sale of the property of the late Dr. John E. Barnard. I am sorry to hear that you are unable to obtain the necessary information from the records of the City of New York. I will endeavor to obtain the same from the records of the City of New York and will advise you of the result as soon as possible. Very respectfully,
A. J. A.



T O

Dr. *JOHN BEAUFORD.*

S I R,



THE Friendship you shew'd
me in the Infancy of my
Practice has been too essen-
tially useful to me ever to

be forgotten ; and it is with great
Self-Satisfaction that I take this pub-
lick Opportunity of acknowledg-
ing the Obligations I lie under to
you. My Interest in Town was not

A 2

only

only strengthened and extended by the Share you were seen to take in it, but my Knowledge was enlarged by my Converse with you, and my Practice was formed by my Observation of yours.

I carefully examined the *Modus* of Practice here, of the most Eminent of the Profession, when I first came to Town, intending to shape my own with that which should seem to me the most conformable to the Sentiments of the Great *Hippocrates*; and finding none more natural and uniform than Yours, I took it for my Model, and have continued it ever since with all the Success I could hope for.

The Profession of Physick is held in higher Esteem in this, than any other Country in *Europe*; and no wonder; because none can produce so learned a Body of Physicians. But among that Body, more learned and skillful than any other in the World,
your

DEDICATION. v

Your long Experience, Sir, sets you in the first Class of it. This is a Truth unquestioned, not only by the Publick, but even by those of the Profession.

You have a natural Right to the Patronage of the following Work, being founded chiefly on your own Maxims, and originally begun that I might have a publick Opportunity of owning your Favours, and doing Justice to your Merit. How I have succeeded in the Choice and Contexture of my Subject, I submit to the Publick with the utmost Defe-
rence; but however I may have fail'd in the Opinion of other learned Men, I have too often experienced your Indulgence, not to flatter myself that you will view all Inaccuracy of Stile and Diction, and other as minute Imperfections, with your usual Candour and Good-nature. As for more capital Errors, I shall most readily own and reform any such, and most

vi DEDICATION.

gratefully thank any friendly Hand
that shall be at the Pains of pointing
them out to me. I am, with the
greatest Sincerity,

S I R,

Your obliged,

and most obedient

humble Servant,

Stanhope-street,

June, 1744.

BERNARD LYNCH.



P R E F A C E.



HERE a Title-Page is so expressive of the Contents of a Book as the foregoing, a Preface might seem unnecessary; and I should think it so, if Custom did not seem to exact that a Bill of Fare should be serv'd up to the Company before they sat down to Table. To comply then with the Humour of this modern Tyrant, I must inform the courteous Reader, that the sole End of my Labour was to inform the Uninform'd, and to erect such Lights as might help them to form such a Judgment of their own Constitutions, as should prevent their fancying themselves in a worse State of Health than they are, and running after every Empirick, who pretends to the Knowledge of Catholicons, or universal Remedies. These are the Bane of all Societies; and tho' Quacks are soon detected, yet as the Succession of them is so very constant and rapid, the Commonalty for the most part, see not the Injury done to them, nor the Wrong they suffer. This is a Misfortune to be lamented, but difficult to be removed, whilst Man is prejudic'd

in Favour of Novelty, and in Disfavour of the Regular Physician, who can't afford to bestow the Fruits of his hard Labours on the Public promiscuously.

There is one Thing in the following Sheets which the Author owns to have labour'd more than any Part of his Subject, which is the Doctrine of *Non-naturals*, the Knowledge of which, he thinks, no reasonable Man who values his own Health should be ignorant of; and which he presumes to say, has been more obscurely treated heretofore, than it ought to have been, or indeed he believes it was design'd it should be.

In treating of acute and chronical Diseases, there are general Remedies, but except in one or two Occasions, such as the Bite of a mad Dog, and some Consumptions, there are no formal Recipes, which, it is found by Experience, are generally productive of more Evil than Good. For the general Ignorance, I may say Infatuation, is such, that the Vulgar too often make material Mistakes in the Preparation of the most plain and simple Recipes. Besides, that as the Nature of Diseases and Constitutions is so various and different, not to mention the Climate, Air, Season, Age, and a thousand other differing Circumstances, it would be too presuming for the Author to take upon him to prescribe for every particular Distemper. He would not do so great a Wrong to the Illiterate, nor, to use the learned *Boerhaave's* Words, *Would do*
any

any thing so prejudicial to the noble and generous Science of Physick, or expose it to Reproach, as they must inevitably do, who pretend to adapt a particular Remedy to general Diseases.

Having mention'd the ever-famous and-to-be-rever'd Boerhaave, the Author takes this Opportunity of owning his Obligations to him, not only in his Practice, but in this Work particularly. He has all along kept that Great Man in his View, nor has he been unmindful or neglected any other eminent Writer in Physick, either ancient or modern. He has frequently quoted their Words, and always endeavour'd to conform himself to the Sentiments of the most approv'd Authors. And that his Gratitude to all such great Men as well as Justice may be seen, he has annex'd a Catalogue of such Authors as he owns himself indebted to in the Compilation of the following Treatise, thinking this Method more orderly and eligible than a constant Quotation.





A LIST of the AUTHORS.

<i>Ægineta, Paulus.</i>	<i>Leeuwenhoek.</i>
<i>Anbornius.</i>	<i>Lister.</i>
<i>Arbutnot.</i>	<i>Livy.</i>
<i>Boerhaave.</i>	<i>Malpighi.</i>
<i>Boyle.</i>	<i>Mead, Richard.</i>
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<i>Desault.</i>	<i>Robinson, Tancred.</i>
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<i>Floyer, Sir John.</i>	<i>Sydenham.</i>
<i>Galen.</i>	<i>Seneca.</i>
<i>Hippocrates.</i>	<i>Sanctorius.</i>
<i>Hugens.</i>	<i>Suetonius.</i>
<i>Hales.</i>	<i>Torricellius.</i>
<i>Halley.</i>	<i>Van Helmont.</i>
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<i>Keil.</i>	<i>Willis.</i>
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E R R A

E R R A T A.

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PART III.

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A
GUIDE *to* Health, &c.

P A R T I.

Of the different Degrees and Changes of Age ; the principal and inevitable Causes of Old Age ; and, finally, of our Dissolution.

To which is annex'd,

A brief, chronological, and historical Account of LONG LIVES, from before the *Flood* to this present Time.

C H A P. I.

Of the different Degrees and Stages of Man's Life ; with a Description and Definition of Old Age.



S our Bodies are subject to Changes and Alterations, from the Minute we come into the World ; so the *Physicians*, regarding the most apparent and sensible Changes only, have divided Man's whole Life into several Periods, which
A they

they call *Ages*: The *Egyptians* reckon'd as many as there are † *Septenaries* in a hundred; for they were of Opinion, that Man's Life could not exceed that Term.

The *Pythagoreans*, who were very superstitious in the Doctrine of Numbers, have publish'd in their Writings, that we undergo remarkable Changes every seven Years, as well in regard to the Temperature of the Body, as the Qualities of the Soul; all which must be referr'd to the Excellency and Perfection of the Number *Seven*.

But I will not enter into Disquisitions upon Numbers in this Place; it is enough for me to have the Concurrence of all the most celebrated Authors, that Man, according to the natural Course of Life, undergoes five remarkable Changes in his * *Temperament*, and passes five Ages or Periods; that is, *Infancy*, *Adolescency*, *Youth*, *Manhood*, and *Old Age*.

Infancy is hot and moist; but the Moisture is predominant, and keeps the Heat in such Subjection, that it can no way shew its Effects.

It

† *Septenarius*, or *Septennium*, containing the Space of seven Years. Some of the Antients reckon'd every Constitution underwent some remarkable Change in every such Revolution, whence the seventh Year was call'd *critical*, or *climacterick Year*.

* *Temperament* is that Diversity in the Blood of different Persons, whereby it is apt to fall into some certain Combinations more in one Body than another, whether into *Sanguine*, *Choler*, *Phlegm*, or *Melancholy*; from whence Persons are said to be of a *sanguine*, *choleric*, *phlegmatick*, or *melancholy Temperament* or Constitution. Of all which I shall speak more at large hereafter.

Part I. *thro' the various Stages of Life.* 3

It continues to the thirteenth or fourteenth Year.

Adolescence follows, which is likewise hot and moist, but the Heat begins to be predominant; for we see its Sparks shine and lighten every where.

In Males the Voice then begins to grow loud and hoarse; they spread and dilate every way, and cast their first *Downs*. In Females the Breasts grow visibly harder and larger, the Blood is in Motion thro' the whole Body, and pushes on all Sides till it finds Passage. This Period extends to the Age of four or five and twenty, which is the Term limited by Nature for Growth.

This is succeeded by *Youth*, which is full of Heat, Vigour, and Agility: It runs to thirty-five or forty. In this Age the Body comes to its full State, and the Fibres, Membranes, and Bones to their due Solidity. This is what is call'd *Manhood*, and is the most temperate of all the Ages of Man, participating of the four Extremes equally, and extending to the fiftieth Year; where *Old Age* begins, which comprises the Remainder of our Lives.

Now this last Period of Man's Life may be divided into three Stages; but I pass over that which is call'd *Senium ex morbo*, that is, *Old Age* brought on by Sickness.

The first is call'd *Verdant*: It is accompanied with Prudence, and is full of Experience, and fit for governing Commonwealths, and managing Affairs of Importance. The se-

cond begins at *Seventy*, and is attended with several little Ailments, and is *cold* and *dry*. As to the first, there are such apparent Marks of it, that none ever doubted it; for if we touch old Men of those Years, we shall find them generally very cold in all their Muscles; they have no lively or Vermillion Colour; all their Senses are weaken'd, and they are subject to a great many cold Distempers: But as to the other Quality, *Dryness*, some have endeavour'd to dispute it, saying that this Period is moist, but not dry. To this *Galen* replies, in his first Book *de Sanitate Tuenda*, that *old Men have all those Parts dry which are moist in Children*; that is, the solid Parts, upon which the whole Constitution depends. This is even the Opinion of the Moderns, and what we should follow; for *Leanness*, *Wrinkles*, *Hardness* of the *Nerves* and *Skin*, the *Stiffness* of the *Joints*, are sufficient Demonstrations of this dry *Temperament* at that Age. At length comes the last Step of *Old Age*, and is call'd *Decrepit*; in which, according to the *Royal Prophet*, there is nothing but Pains and Grief; for all the Faculties of the Soul and Body are weaken'd, the Sentiments dull and heavy, the Memory lost, the Judgment defective.

This last Period of *Old Age* is describ'd in the twelfth Chapter of *Ecclesiastes*, under so beautiful an *Allegory*, that nothing can excel it; and as the Royal Author was the greatest *Philosopher* and *Naturalist* that ever wrote, I
will

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will therefore present the Reader with his
Description of this Stage of Life at large,
which, besides its Beauty, will likewise serve
us for Instruction and Counsel.

*Remember, says he, thy Creator in the Days
of thy Youth, while the Sun, or the Light, or
the Moon, or the Stars be not darkened, nor
the Clouds return after the Rain.*

*In the Day when the Keepers of the House
shall tremble, and the strong Men shall bow
themselves, and the Grinders cease, because
they are few; and those that look out of Win-
dows be darkened, and the Doors shall be shut
in the Streets, when the Sound of the Grinding
is low, and he shall rise up at the Voice of the
Bird, and all the Daughters of Musick shall
be brought low.*

*And when they shall be afraid of that which
is high, and Fears shall be in the way, and the
Almond-tree shall flourish, and the Grasshopper
shall be a Burden, and Desire shall fail, because
Man goeth to his long home, and the Mourners
go about the Streets.*

*Then shall the Dust return to the Earth as
it was: and the Spirit shall return to God that
gave it.*

This is the Description of the last Stage of
Man's Life, which is admirable. In decrepit
old Age, *the Sun and the Stars are darken'd;*
that is, the Eyes of Man, which are grown
dim; *nor the Clouds return after the Rain;*

that is, after they have been weeping a long time, they seem to have thick Clouds before their Eyes. *The Keepers of the House shall tremble*; that signifies the Hands and Arms, which have been given to Man for the Defence of his whole Body. *And the strong Men shall bow themselves*; that is, the Legs, which are the Columns that support the whole Building. *And the Grinders cease*; that is, the Teeth, which grind and chew the Aliments. *And those that look out of the Windows be darken'd*; that is, the Eyes, which are troubled with Cataracts, and several other Disorders incident to the Sight of decrepit old People. *And the Door shall be shut in the Streets, when the Sound of the Grinding is low*; those are the Chops, which cannot open to chew, or the Canals thro' which the Aliment us'd to pass, but are now grown straight and narrow. *And he shall rise up at the Voice of the Bird*; that is, decrepit old People cannot sleep, and are always awaken'd by the Cock's Crowing. *And all the Daughters of Musick shall be brought low*; that is, their Voice, which fails them. *And the Almond-tree shall flourish*; that is, the Head, which is all white. *And the Grasshopper shall be a Burden*; that is, the Legs, which are swoln, &c.

Having now describ'd the Ages terminated by Years, I would not however be so far confin'd to the usual Number into which Man's Life is divided, as if *Youth* and *Old Age* must intirely depend upon it: We ought rather to

regu-

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regulate ourselves by the * *Temperament*, or Nature of our Constitution: for we may call every Man that is *cold* and *dry*, an old Man; there are a great many such at forty, and a great number of young Men at sixty. Some Complexions fail sooner, and others later.

The *sanguine* are of long Duration, because they have a deal of Heat and Moisture, which Constitution or Temper is most commodious to Mankind, and qualifies them best for Action, and is therefore most consistent with Health and long Life; whereas the contrary Temper, *viz.* *cold* and *dry*, soon tends to Decay and Death: for the sooner a Body withers and dries away, the sooner it grows old, and draws near its Dissolution. This *Heat* and *Moisture* hath also its several Degrees, but these Qualities are best when moderate; those which differ and recede from that Mediocrity, are called *hot* and *moist*, *hot* and *dry*, or *cold* and *moist*, and *cold* and *dry*, tho' all in general are hot and moist in some Degree.

These differences of Tempers are commonly distinguish'd by the Denominations, which I have observ'd already, of *Sanguine*, *Choleric*, *Phlegmatic*, and *Melancholic* Constitutions, according to the Nature and Disposition of the Juices in the several Bodies, where the excrementitious Discharges answer thereto. They whose Blood is of a moderate Temper, between *hot* and *moist*, are called *sanguine*; those who exceed in *heat*,

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and

* *Temperament*, See Pag. 2. Note *

and whose Blood is dryer, are called *Choleric*; those who are cold and moist, *Pblegmatic*; and lastly, those who are cold and dry, *Melancholic*; and this last *Temper* or Constitution grows old sooner than any of the rest.

As to what regards the Sexes, the Female, generally speaking, grows old sooner than the Male, which *Hippocrates* justly observes, in his Book concerning those Children who are born at the End of the seventh Month. *The Females*, says he, *are later in forming and growing in the Womb than the Males; but when they are out of it, they grow faster, have earlier Understanding, and are sooner old, on account of the weakness of their Bodies, and their manner of living.* Weakness hastens their Growth, and brings them likewise sooner to old Age; for as the Plants which are short-liv'd grow in a few Minutes, so the Bodies which have no long Duration, soon come to their Perfection. Their manner of living likewise contributes very much to their growing old soon, as they most commonly lead an unactive life; for nothing brings us sooner to old Age than Sloth and Idleness.

As to the different *Tempers* and Constitutions of Men, they depend, in a great measure, not only upon the various Dispositions of the Humours contain'd in the Body, but also on the peculiar Conformation, and Structure of the noble Parts, and their various Proportions in respect to each other, which disposes

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disposes them to breed Humours of different Kinds and Dispositions; and endows them with various Qualities, according to the several Alterations they undergo in different Bodies, and the Proportion of such animal *Fluids* differently fermented, exceeding or falling short in Degrees of Digestion; or being variously vitiated by the assimilating Qualities of Humours already contain'd, or of fresh Food taken into the Body, which may pervert the Disposition of the *Fluids* already contain'd in the Blood Vessels.

The Proportion of the Parts of the Body, and their Conformation, may contribute to the difference of Constitution, as they separate and discharge Humours, not only differently prepar'd, but in greater or less Quantities: Thus, if the Heart be larger in Proportion to the Body than the rest of the Parts, the Blood must circulate more briskly, and with greater Force; if the Liver be large, and separate a great Quantity of *Bile*, the *Chyle* and Blood must be more bilious; and as the Stomach digests differently, the Blood must be supplied with Nourishment in greater or less Quantities, more or less digested, and so occasion *Sanguine*, *Choleric*, or *Phlegmatic* Constitutions. Thus the noble Parts contribute to the different *Temper* of the whole, as well as other particular Parts of themselves.

Hence it is, that different Parts of the Body are, in respect of one another, esteem'd
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to be of different *Temper*s; as the *Heart*, upon account of its Situation and constant Motion, may be reckon'd one of the hottest Parts of the Body. The others reckon'd of a hot *Temper*, are the *Liver*, the *musculous* Flesh, the *Spleen*, the *Kidneys*, *Lungs*, *Veins*, *Arteries*, and *Fat*. The cold Parts are, the *Bones*, *Cartilages*, *Ligaments*, *Tendons*, *Nerves*, *Membranes*, *Spinal Marrow*, and the *Brain*. Those which are accounted moist, are the *Fat*, *Marrow*, *Brain*, *Breasts*, *Testicles*, *Lungs*, *Spleen*, *Kidneys*, *musculous* *Flesh*, *Tongue*, *Heart*, and the softer *Nerves*. The dry Parts are, *Bones*, *Cartilages*, *Ligaments*, *Tendons*, *Membranes*, *Arteries*, *Veins*, and hard *Nerves*.

There is moreover another difference in the *Temper*s or *Constitutions* of human Bodies, in respect of *Age* and *Sexes*; thus Women are naturally colder than Men, too much Heat being supposed apt to consume and vitiate the tender Nourishment of Infants, which is to be prepar'd in the Mother. Age likewise alters *Constitutions*, according to the several Stages and Periods, as I have observ'd before; thus Infants and Children are hot and moist, Youth more temperate, Men and full-grown Persons hot and dry; whereas in old Age the Heat decreases, and Nourishment is dry'd up for want of its usual Supplies.

Another thing that makes *Constitutions* differ, is the difference of *Climates*, the manner

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manner of living, the nature of the Food they use, and the Liquors wherewith the more solid Parts of the Food are diluted; but for a more particular Account of different Constitutions, see Part II. Chap. IX. where I treat of the Diet proper for each respectively.

Having hitherto given the Reader an Account of the different *Degrees* and *Changes* of *Age*, as likewise a Description of *decrepit old Age*, supported by the Authority of the wise *Solomon*; and lastly, of the Causes and Nature of different Constitutions, I shall now finish this Chapter with the Definition of it, which will be of singular Use to such as will observe the Precepts hereafter mention'd, in order to preserve Health and long Life.

The incomparable *Sanctorius*, most elegantly and concisely defining *old Age*, says in Aphorism xxxv. Sect. v. *Senectus est universalis fibrarum durities*, &c. that is, old Age is an universal Hardness of the Fibres, &c. which implies, that when there is a greater Waste of the *nervous Fluid* than can be repair'd, then the component *Machinulæ* * of all the *Fibres* of the human Body, for want of a Sufficiency of this *animal Oil* or *Fluid*, are harden'd and dry'd, the Pores are thereby straiten'd

* *Machinulæ* signifies in *Anatomy*, the various Textures, Combinations and Decussations of the *Fibres*, compounding the *Muscles*, *Nerves*, and *Membranes* of the Body; which is only a Diminutive from the Word *Machine*.

straiten'd and obstructed, by which means the *natural Heat* is stifled, and at last Death ensues; hence it is, that the nearer a Person is brought to this State of *an universal Hardness of the Fibres*, &c. by any means whatever, the farther such a Person may be said to be advanc'd towards *old Age*.

Wherefore the *great Secret* and sole Method of *long Life*, is to preserve the Blood and Juices in a due State of *Fluidity* and *Thinness*, whereby they may be capable of making all those Circulations and Rounds thro' the animal *Fibres*, wherein Health and Life consist, with the fewest Rubs, and least Resistance that can be. But notwithstanding all our Efforts, Time and old Age will stiffen and fix our Solids at last; for Age and Time, by weakening the Appetite and *Concoctions*, impairing the natural Heat, which consists in a brisk and extended Circulation of the Fluids to all the Parts of the Body, by the converting those Juices into solid Substances, and thereby fixing and hardening these Solids, and depriving them of their due *Elasticity*; so the remaining Fluids circulate slower, and with less Force, and seldom reach the Extremities and smallest Vessels, but only pass slowly through the larger Vessels. And tho' with all these unavoidable Circumstances, both the *nutritious Juices*, the *serous* and *globular* Part of the Blood become *viscid*, *thick*, and *gluey*, so that the Circulation must stop, and come to an end at last; yet it is certainly in a great measure
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in our own Power to put a Stop to the too quick Approaches of such an irremediable *Period*, by keeping our Juices in a due State of *Fluidity* and *Thinness*, and to render them such, if they are not corrupted to an extreme Degree; so that the remainder of Life be not too short to undertake such a Work; for it is very certain, that we may dilute and thin any *Fluid*, that has an *Inlet* and *Outlet*. And the smaller and finer the Parts of any circulating Liquor are, the less Force it will require to set it a going, and to continue its Motion: And it is just even so in animal Bodies; for the more fluid and thinner the Juices are, they will not only circulate with less Force, and with less Resistance or Pain, but they will likewise preserve, by their Circulation, the *Solids* the longer from hardening and stiffening.

Now, as nothing brings a Person sooner to that State of *universal Hardness and Stiffness of the Fibres*, and a *Viscosity and Thickness of the Juices*, than indulging in strong high Meats, which the *concoctive Powers* cannot divide small enough to be converted into red Globules of Blood, or circulate thro' the small Vessels, but overload them with corrosive *urinous Salts*, which run into Clusters, and first obstruct, and afterwards tear and break these small Vessels, and likewise in *swilling* of strong Liquors, which by their *caustick* Quality dry up, burn, and destroy the tender and delicate Fibres of the *Solids*; therefore

therefore I say, as nothing but such an Indulgence, and such long-continued Excesses, and obstinately persisted in, can so soon produce such a State of the *Fluids* and *Solids*, and consequently bring on many fatal *chronical* Diseases, according to the particular Habit, Make, and Constitution of the Person : So it is evident, that the only Method and most effectual means that can solidly and thoroughly accomplish the contrary State of the *Blood* and *Juices*, is to render them thin, sweet, and in a continual flowing Condition, by taking the contrary Measures, in keeping to a strict Regimen of a *fluid, thin, spare, plain,* and *lean* Diet ; for as Dr. Cheyne justly observes, *No voluptuous and lazy Person, unless he had an original Constitution of BRASS, ever liv'd to a great Age ; and even then, as his Life has been more Misery and Pain, than ever a SOBER GALLY-SLAVE endur'd, his End, and the latter Part of his Days has been RACK and TORTURE, HORROR and DESPAIR.* So that *Longævity* is scarce ever found but among the abstemious.

As all the Parts of the human Body are made up of *Fibres*, which are small, *transparent, solid,* and *elastick*, or springy Threads or Filaments, of which mention is made in the foregoing Definition of *old Age*, and which have been sufficiently demonstrated by *Physicians* and *Anatomists* already ; yet it will not be improper to give some Account of them here, for the sake of as many of the *English* Readers

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Readers as may be unacquainted with either
Physick or *Anatomy*, and for whose Benefit I
have chiefly compiled this *Treatise*.

Therefore these *Fibres*, or small Threads,
that constitute the human Body, are of different
Sorts ; some are soft, flexible, and a little
elastick †, and these are hollow like small
Pipes, or spongy, and full of little Cells, as
the nervous and fleshy *Fibres*. There are
others more solid and flexible, but with a
strong *Elasticity*, as the *membranous* and *cartilaginous*
Fibres ; and a third Sort hard and inflexible,
as the *Fibres* of the Bones. And of all these
some are very sensible, as those of the *Nerves*,
Blood-vessels, Membranes, Tendons, and Muscles ;
and others are destitute of all Sense, as those
of the Bones ; some so very small as not to be
easily perceiv'd ; and others, on the contrary,
so big as to be plainly seen ; but most of them,
when examin'd with a *Microscope*, appear to be
composed of still smaller *Fibres*, and may be
divided still into less ; and indeed this Division
proceeds so far, that at last they become so
incredibly small as to exceed all the Power of
Imagination ; but Reason will shew us, there
must be an End.

Now these simple *Fibres* do first constitute
the Substance of the *Bones*, *Cartilages*, *Ligaments*,

* *Elastick* or springy, signifies a Force in Bodies, by which they endeavour to restore themselves to the Posture from whence they were displaced by any external Force.

ments, Membranes, Nerves, Veins, Arteries, and Muscles. And again, by the various Texture and different Combinations of some, or all these Parts, the more compound Organs are fram'd, such as the *Lungs, Stomach, Liver, Legs, and Arms*, the Sum of all which makes the human Body.



CHAP. II.

The principal and inevitable Causes of OLD AGE, and of our DISSOLUTION.

I Shall shew in this Chapter, with what has been already said, such things as alter our Bodies, and whatever makes them grow old, and brings us at last to our Dissolution.

The Causes, then, of the Alterations of our Bodies, and likewise of our Dissolution, are either external or internal: These last are born with us, and always attend us, even to the Grave: The others come from without us, surround us on all Sides, and, tho' we can guard ourselves against some of them, there is however an infinite Number of them which we cannot escape.

The internal Causes which come into the World with us, are two, *viz.* the Contrariety of the Principles of which our Bodies are composed, and the *Animal Actions or Functions* of the human Body.

The

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The Principles of our Composition are,
1. A *Water* or *Phlegm*. 2. A *volatile Fluid* or *Spirit*. 3. A *saline Matter* or *Salt*, both *volatile* and *fix'd*. 4. A *fat Substance* or *Oil*, otherwise call'd *Sulphur*. 5. An *Earth*, or *Caput Mortuum*. But the *Spirit* being only a Mixture of *Phlegm* and *Salt*, these five may be properly reduced to four †.

The *Animal Actions*, or *Functions*, which happen in all the Parts of human Bodies, by the Motion of the Humours in their distinct Vessels, and the Effects they have upon one another, are distinguish'd into *vital*, *natural*, and *animal*. Those call'd *vital* so much conduce to preserve Life, that they are of absolute Necessity; as the muscular Action of the Heart, the secretory Action of the Brain, that of the Lungs, and of the Blood and Spirits, with their Motions thro' their proper Organs; and also the *Veins*, *Arteries*, and *Nerves*.

The *Natural Actions* are those that so alter our Aliment, as that it may become Part of our Substance; and such are the Actions of the *Bowels*, *Vessels*, and *Humours* that receive, retain, move, change, mix, separate, apply, discharge, and consume.

The *Animal Functions* are such as, when perform'd, the Understanding conceives *Ideas* of Things, united to that Action; or the *Will* is either concern'd in exciting such Actions, or mov'd by them when excited: Such are
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† Boerhaave Institutiones Medic. de Natura & Part. Sarg.

the Touch, Taste, Smell, Sight, Hearing, Perception, Imagination, Memory, Judgment, Reason, Passions of the Mind, and voluntary Motions. From hence we may know, that Health is such a Disposition of the Body as fits it to exercise all its Actions, and that all the Effects of those Actions respect determinate Motions, and the Change made in our Aliment.

The Principles of our Composition just now mention'd, being duly distributed thro' the whole Body, may be call'd an *Equilibrium* between the *Solids* and *Fluids* of a Person in Health; or, which is the same thing, an exact Ballance of *Contrarieties*, making a kind of Agreement or Harmony amongst themselves, in order to mix and unite; wherein each of them quits something of its Sovereignty, and reduces itself to a Mediocrity, which is call'd *Temperament*. But this *Alliance* is of short Duration; for the Body, by the Actions inseparable from Life, suffers such a gradual Change, that the smallest Vessels become stiff, and the minutest grow together into Fibres, unfit for the Humours to pass thro' them; the greater Vessels become hard and narrow, and all are contracted, and, being compress'd, grow together, which occasions Dryness, and Unaptness to Motion in old People. By this means the Actions of the small Vessels are destroy'd, and the Humours stagnate and grow thick in them, and the Fibres adhere together: Thus the most subtile Parts of the
Juices

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Juices are wanting and dissipated, Digestion is weaken'd, Nourishment is deficient, and the grosser Humours only circulate thro' the large Vessels slowly, and support Life alone, without the *Animal Actions*, till at last these Changes bring on Death from *Old Age*, the Successor of perfect Health; which happens sooner if the Actions of Life have been violent, but later if moderate; and this is one of the Causes of our Dissolution: It is inevitable, and we bring it with us from the Womb. But, in order to make this more evidently appear, it is necessary to consider the following Particulars concerning Nutrition, Growth, and Decrease of the Body.

As there is an Aptness to Motion requisite in the Vessels, Muscles, and Fibres of the human Body, in order to enable it to make due Use of all the Motions of its Humours, Vessels, and Muscles, without Detriment thereunto: So, for this Purpose, the Parts which are coherent, should be partly free from Contact, and partly remain in it, which cannot be, unless the greater Parts consist of the smallest, thinnest, and shortest ones; nor will that happen again, unless a renovating Humour passes continually betwixt them, to hinder their growing together; therefore, as the whole human Body is flexible, and subject to Changes from Contact, of Necessity it ought to consist of small Vessels.

But this very Motion, being continually and violently perform'd, in Vessels of such a

tender Fabrick, the least Parts must of necessity be thereby worn off from the Solids; and thence, being mix'd with the Liquids, be mov'd round by the perpetual Circulation of the Juices, as well as by the Action of the Muscles, and exhale. In the mean while the Fluids, being ground small by the continual Attrition of their Parts, and drove to the Vessels thro' which they exhale or transpire, are quite excluded out of the Body; and thus the Animal Body, from the very Condition of its *Frame*, is soon destroy'd.

Therefore it is requisite, for the due Continuance of Life, that as much Matter, and of the same Kind, should be continually restored to the Humours and solid Parts, as was lost by those Motions, which Action is call'd Nutrition.

The Humours that are worn away, are again supplied, as to their Matter, by *Air*, *Meat*, and *Drink*. As to the Qualities requir'd, those are produced by the concurring Assistance of all the Parts of the Body, and by means thereof applied to the Vessels where they are wanting.

Every solid Part of the Body is composed of other less Solids, very like the greater; the Vessels, of smaller Vessels; and the Bones, of smaller Bones. And this manner of Structure proceeds beyond all the Limits of Sense, assisted by what Art soever, as *Malpighi*, *Ruysche*, *Leeuwenhoeck*, and *Hook*, have demonstrated by accurate Experiments; yet this
Divi-

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Division scarce seems to proceed *ad Infinitum*, as appears by the Nature of the Nourishment and Fluids themselves.

Moreover *Microscopes*, *Injections*, the least imaginable Wounds, *Vesicatories*, Consumptions, and the withering away of the Body, inform us, that our solid Parts, in respect of the Humours, are but very small; for it is almost demonstrable, from the Consideration of the Rise and Generation of the Vessels, and the Resolution of the greater Canals into their least constituent Parts, that the whole solid Mass of our Bodies is almost wholly compos'd of mere *Nerves*, consider'd in their primary Composition and Communication.

And truly all that Mass, except an incredible small Particle, at first grew together, from those which were before the most subtile Liquid of the *Colliquamentum* or Fluid, almost all which goes to compound the Body, being much like the nervous Fluid, according to *Malpighi*; for the White of an Egg does not nourish, before it has been long brooded upon, till that thick clammy Humour has pass'd thro' a vast many Degrees of Fluidity, by several Changes, to fit it at last for the Purposes requir'd; but even then, when it comes to supply the *Embryo*, it is very thick, and must be much more subtiliz'd in its Vessels and Bowels.

The first tender solid Parts being made out of this most subtile Humour, which are then almost fluid, they pass again thro' a vast many

different Degrees of Solidity, before they arrive at the Perfection of solid Parts; as appears from *Malpighi's* Experiments upon Eggs, and the incomparable *Ruysche's* upon *Embryos* and *Fætuses*, and even from the different Parts themselves.

Hence it appears, that the solid Parts, in their first Origin, differ only from Liquids, whence they spring, by Rest, Cohesion, and their Figure; therefore such a Particle, while fluid, will become Part of Solid, to be form'd thereof, as soon as the Power that causes it to cohere with the other solid Parts, shall act, by what means soever it be.

This Cohesion of the Parts is best produc'd in a *Fibre* already form'd, if there be a sufficient Place in the Solid, left by that Particle which was lost, and at the same time, another Particle in the Fluid of equal Bulk, Figure and Nature, and endow'd with sufficient Force to thrust it in, or fit it to that Place.

Therefore there will be a true *Nutrition* of the *Solids* in the smallest Vessels, which, by Addition, become greater; that is, in the *Nerves* or Vessels like them; which, since it cannot be perform'd without a Liquid be brought into those Vessels, seems very plain, that the most immediate matter of Nourishment is the most subtle, nervous Fluid, or some other like it; and therefore appears to be perform'd and produc'd from the last and most refin'd Actions of Nature; and that it
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may be well perform'd, all the preceding Actions ought to be perfect.

The *Chyle* therefore may fill the greater Vessels, but cannot recruit the solid Parts; but being attenuated, alter'd, rarefied, mix'd, and made fit to pass thro' some Vessels, by the force of Respiration in the Lungs, it is render'd the more proper indeed, but still not fit Matter for this Purpose.

However, by the repeated Effects of the Lungs, Bowels, and Vessels, it becomes a white, tenacious, forming Liquor, almost without Smell, thickens by the Heat of the Fire, or in Spirit of Wine; being then like the White of an Egg, and called *Serum*; and therefore is such a Fluid, as has all the requisites which ought to be in that Humour; whereof Experience teaches us, that all the solid Parts of an animal Body are constantly made or form'd, only by Incubation, or a constant Heat and Digestion. Thus then the Matter is brought a Degree nearer, but yet is not quite fit for Nutrition; much less is red Blood, which never enters the smallest Vessels.

But as the Heat of Incubation, so the Action of the *Viscera* and Vessels, occasions divers Changes on this circulating *Serum*, till Part of it is turn'd into such a subtle Humour as is here requir'd; and being consumed, it is again supplied, and this at length becomes the true and immediate Matter of Nourishment; which, how simple it is, how insipid,

or without Smell, will appear from the Fire, Putrefaction, or the Art of *Chymistry*, for it leaves behind but a pure and exceedingly light Earth.

Nor can this Matter be prepar'd, without undergoing the foremention'd Alterations : But the same Humour may, by too often and repeated turns of Circulation, grow sharper, or lose its Liquidity, and become thick ; being drain'd of its oily Parts, and render'd pungent by Salts, and then it is unfit for this Use ; which may, perhaps, be partly discharg'd by Perspiration, and partly by Urine. Therefore there is a necessity of new *Chyle*, and consequently of Aliment, to supply this Nourishment. As to the Manner how, and the Cause why Nutrition is perform'd, that will appear from what follows.

The Humour being forced forwards, thro' a full, *conical, cylindrical, elastic*, or stiff and rigid Tube, if it flows from a broad Part into an narrower, or with a Resistance against its Motion, it will endeavour to extend the Sides of the Canal, according to its longer *Axis* ; and this happens all over the Body, except in the *Veins*, and the Cavity of the *Receptacles*. And by this Force, tho' small, being constant and repeated, the Vessels will by Degrees, and insensibly be lengthen'd ; and by growing longer, will become thinner, and soon be more and more attenuated : By this means, the utmost Extremities of the Vessels, which are smallest, will be less coherent, and

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next to a State of Diffolution. And thus the Extremities of the Vessels will be render'd much finer and weaker, and little different from Fluids.

Whilst therefore this Motion perpetually proceeds in a continual Propulsion, it must necessarily happen, that the last Particles of these very fine Tubes being worn away, will again put on the form of a Liquid, in whatever Part of the Body they remain; and then the smallest Parts, which compose the finest *Fibres*, by their Union will be so mutually separated from one another, as to leave small Intervals in those Places where they before grew together; and this will constantly happen every where, as long as Life continues, especially where it is strong, and the Action of the Body violent.

But the same Humour wherein all this happens, contains a great many such Particles as were separated or lost, which it carries, applies, and adapts to these very Intervals, with that very Force with which it endeavours to break the Vessels, and then fixes, fits and fastens those intercepted Particles in these Cavities; so that they grow together as the former: for the Matter, the Preparation and Application thereof, with the Force of Motion, will always continue the same; and therefore what is lost will be easily restor'd, and so the solid Parts remain as they were, that is, they are nourish'd and preserv'd continually.

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And this shews the wonderful Wisdom of our Maker, that the same Cause which inevitably destroys, shall also at the same time repair the Structure of our Frame; and that too according to this Rule, that the greater the Loss, the larger shall be the Supply; and that those Parts, which by the Actions of the Body are first worn, are always the first supplied.

It is plain then, that the more tender those Vessels are, the newer, and the nearer to the moving Cause, so much the easier they are stretch'd, distended, destroy'd, and renew'd; and consequently, the nearer our Bodies are to their Origin, the more they grow and increase.

Whilst this Action goes forwards, the greater Vessels are more distended by the Liquor they contain; but at the same time, the small Vessels, which being interwoven, compose the Membranes of the greater, are more compressed, dried, and grow nearer together, which adds Strength to the Fibres, at the Expence of vascular Property; so that in time our Vessels turn to hard Ligaments, and the Humours become firm and solid. By a Concurrence of these Causes, the Solids become strong, hard, stiff and thick. Therefore the vast number of Vessels that are in an *Embryo*, gradually decrease as Age comes on; and for the same reason, on the other hand, as Weakness decreases, Strength increases; and so in young Persons, the Quantity and Vigour

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Vigour of the Humours exceed that of the Solids; but in old People, the Solids in Quantity and Strength exceed the Liquids; from whence plainly appears the manner of the Increase, Decrease, and Death of the Body, merely from old Age, with the Causes and different Appearances thereof.

Whoever therefore considers this whole Account, and then compares these Accidents which happen to the Body therewith, will clearly perceive this to be the State of the Case; for the whole *Cuticle* every where perpetually scales off, perishes, and renews again; the Hair, Nails, Teeth, shav'd, par'd, cut off or wore, grow afresh; and Parts of the Vessels and Bones taken away, in a short time return on every side; and if the Filth in the Extremities of the Vessels throughout the whole Body, that is either worn off, or collected there by Exhalation, be view'd in Water with a *Microscope*, after being evaporated or diluted, it appears to consist of Solids and Fluids; and the same when obtain'd by Washing, Rubbing, or Abrasion, exhibit the like Appearance.

From hence appears the Reason why the *Fabric* of our Solids is not dissolv'd by the liquid Contents; and why our *Machine* continues so long fit for Motion; why, when the Nerves are by any means corrupted, the Part to which they lead, loses its Nourishment; why in an *Embryo* there are no Solids, in a *Fætus* few, and in very old People

a vast many ; so that even the *Nerves*, *Tendons*, *Arteries*, and *Receptacles* in those, first become cartilaginous, and then bony.

It is therefore evident from the foregoing Particulars, that the two internal Causes of our Dissolution already mention'd, *viz.* *The Contrariety of the Principles of our Fabric*, and *the animal Actions or Functions of the human Body*, are born, grow, and are nourish'd with us, and that, gradually and inevitably, they bring on *Old Age*, and destroy the Body at last : nor can all the *Physicians* in the World guard us against them ; for the great Promises made with Assurance, as to the Prolongation of Life for so many hundreds of Years, are vain and imaginary, being unsupported both by Reason and Experience : Of this Tribe are *Van Helmont's Primum Ens*, *Paracelsus's Elixir Proprietatis* ; the *Primum Ens* of Animals ; all those precious *Liquors*, that *potable Gold*, those Conserves of *Rubies*, *Emeralds*, *Elixirs of Life* ; that fabulous Fountain, that was reported to make People grow young, cannot hinder us from Decay and Old Age. Nor is it likely that Life should be prolong'd even by the best Methods in Nature, so many Years as the *Chymists* pretend by their Art ; but their own Experience is a Proof of their Temerity and Inability herein.

There are other Causes of our Dissolution, which are external, and likewise inevitable ; for as our Bodies consist of three dissipable
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Substances, one of which is subtile and airy, the second liquid, and the third solid ; so we must necessarily have something that proceeds from without us, in order to repair them, otherwise our Lives could subsist but a few Minutes.

That which repairs our Substance is called *Aliment*, and is threefold, *Air*, *Meat*, and *Drink* ; the first nourishes the spirituous Substance, the second the Liquid, and the third the solid Substance. But this triple *Aliment*, tho' never so pure, has yet always something unlike our Nature, which can never be assimilated to either our Juices or Solids, which must then become excrementitious ; and where an Excrement is generated, and being detain'd in the Body, consequently alters it, and causes an infinite number of Diseases ; by which means our Bodies are variously chang'd and affected, and often finally brought to an intire Dissolution.

I pass over all the other *external Causes*, such as too violent Exercises, an unactive and sedentary Life, long and continual Watchings, those Passions of the Mind which are most capable of making us grow old, as *Fear* and *Sadness*, &c. I say nothing likewise of all accidental Causes, such as *Wounds*, *Fractures*, &c. I have only endeavour'd to demonstrate, that the living Creature must necessarily grow old and decay ; that he nourishes the natural Causes of Death in himself, and that there

are likewise some external ones, which are inevitable.

I thought proper to insert in this Place a Chronological and Historical succinct Account of long Lives, from before the *Flood* down to the present time; with a true and short Character or Elogy of each, faithfully collected from the Records of both sacred and profane History; which perhaps, may prove useful as well as entertaining to the Reader.

Herein he will observe, not only the Necessity of Temperance towards attaining long Life, but that the length of Life by the running on of Ages, or Succession of Generations, has not in the least abated, from the Time of *Moses* to our present Days; for the Term of Man's Life has stood near about fourscore Years of Age ever since, as will appear by the following Account.



C H A P. III.

*An Historical Account of Long Lives from
the Creation to the present Time.*

BEFORE the *Flood*, Men liv'd many hundred Years, as the Holy Scriptures relate; yet none of the *Fathers* attained to the Age of a thousand. Neither was this length of Life peculiar only to *Grace*, or
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the holy Line; for there are eleven Generations of the *Fathers* reckon'd to the *Flood*, but of the Sons of *Adam* by *Cain*, only eight Generations; so that the Posterity of *Cain* seems to have liv'd longer. But this length of Life, immediately after the *Flood* was reduc'd to one half, in the *Post-nati* only: for *Noah*, who was born before the *Flood*, equalled the Age of his Ancestors; *Shem* also lived six hundred Years. Afterwards, three Generations from the *Flood* being ran, the length of Man's Life was brought down to a fourth Part of the Primitive Age, that is, to about two hundred Years.

Abraham lived a hundred and seventy-five Years, a Man of great Virtue, and was abstemious, and prosperous in all things. *Isaac* arriv'd at the Age of an hundred and eighty Years; a chaste Man, who enjoy'd more Quietness than his Father. But *Jacob*, after many Crosses, and a numerous Progeny, liv'd a hundred and forty-seven Years; a patient, gentle, religious, and wise Man. *Ismael*, a military Man, liv'd an hundred thirty-seven Years, and always observ'd Temperance to be his only Guide for obtaining Health and long Life.

Sarah, whose Years only amongst her Sex are recorded, died in the hundred and twenty-seventh Year of her Age: she was a beautiful and virtuous Woman, a singular good Mother and Wife, and yet no less famous for the Liberty from, than Obsequiousness towards her

her Husband. *Joseph* also, a prudent and politick Man, passing his Youth in Affliction, afterwards advanc'd to the Height of Honour and Prosperity, liv'd an hundred and ten Years; he was a sober, chaste, and religious Man. But his Brother *Levi*, who was older than him, attain'd to an hundred thirty-seven Years; he was a Man that was revengeful, and impatient of Reproach or Affront, yet always temperate and moderate in his eating and drinking. His Son liv'd almost to the same Age, as also his Grand-child, the Father of *Aaron* and *Moses*: they were both strictly moderate in their way of living.

Moses liv'd an hundred and twenty Years; a stout and virtuous Man, yet the meekest upon Earth, but of very slow Speech; however he pronounces, that the Life of Man is but seventy Years; but if of a more than ordinary Strength, eighty; which seems generally to be the Term of Man's Life even at this Day.

Aaron, who was three years elder, died the same Year with his Brother *Moses*: he was a Man of a readier Speech, and of a more easy Disposition, but less constant; he was religious, abstemious, and moderate in his Actions of Life. *Phineas*, Grand-child of *Aaron*, out of extraordinary Grace, may be collected to have liv'd three hundred years; if so be that the War of the *Israelites* against the Tribe of *Benjamin*, in which Expedition *Phineas* was consulted, was perform'd in
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the same order of Time in which the History has ranked it ; he was a Man of most eminent Zeal and Virtue.

Joshua, a martial Man, and an excellent Commander, and always victorious ; yet he was religiously sober and moderate, and lived to be an hundred and twenty Years of Age. *Caleb*, who observ'd Temperance, was his Contemporary, and seems to have lived as long as he did. *Ehud* the Judge, liv'd to the Age of an hundred Years ; for after the Victory over the *Moabites*, the Holy Land remain'd under his Government eighty Years ; he was a bold and an undaunted Man, and one that in a great measure neglected his own Life for the good of his People, and was likewise a strict Observer of Temperance.

Job liv'd after the Restauration of his Happiness, an hundred and forty Years, being before his Afflictions of such an Age, as to have Sons at Man's Estate ; he was a politick Man, eloquent and charitable, and the *true Emblem of Patience*.

Eli the Priest liv'd ninety-eight Years ; a corpulent Man, and of a calm Disposition, and indulgent to his Children. But *Elizeus* the *Prophet* seems to have died when he was above an hundred Years old ; for he is found to have liv'd after the *Assumption* of *Elias* sixty Years, and at the time of that *Assumption* he was of those Years, that the Boys mock'd him, by the Name of *Bald-head* ; he was a severe and vehement Man

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against Vice and Luxury, and a Contemner of Riches. *Isaiab* the *Prophet* seems to have liv'd to the Age of an hundred Years; for he is found to have exercised the Function of a *Prophet* seventy Years together, the Years both of his beginning to prophecy, and of his Death, being uncertain; he was a Man of admirable Eloquence, and an evangelical *Prophet*, full of the Promises of God, and of the New Testament, as *a Bottle with sweet Wine*.

Tobias the elder, liv'd an hundred fifty-eight Years; the younger, an hundred and twenty-seven; both of them were merciful Men, and great Alms-givers; they were likewise abstemious and moderate in all their Actions.

It seems, that in the Time of the *Captivity*, many of the *Jews* who return'd out of *Babylon*, liv'd to great Ages, seeing they could remember both the *Temples*, there being no less than seventy Years between them, and wept for the Unlikeness of them. Many Ages after that, in the Time of our *Saviour*, liv'd old *Simeon*, to the Age of ninety Years; a devout Man, and full both of Hope and Expectation. Also *Anna* the *Prophetess*, who could not possibly be less than an hundred Years old; for she had been seven Years a Wife, about eighty-four years a Widow, besides the Years of her Virginity, and the Time that she liv'd after her Prophecy of
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our *Saviour*; she was a holy Woman, and passed her Days in Fasting and Prayer.

As to the *long Lives* mention'd in Heathen Authors, they have no Certainty in them, both for the intermixture of Fables, to which these kind of Relations were very liable, and for their false Calculation of Years. And we find nothing of Moment of the *Egyptians* in those Works that are extant, concerning the length of Lives; for their Kings, who reign'd longest, did not exceed fifty, or five and fifty Years, which is no great Matter, since many at this Day live to those Years.

But the *Arcadian* Kings are fabulously reported to have liv'd very long; and, as that Country was Mountainous, full of Flocks of Sheep, and produc'd most wholesome Food; but when Fable is the only Guide, there can be no Certainty.

Numa King of the *Romans* liv'd to the Age of eighty; he was a peaceable and contemplative Man, and much devoted to Religion. *Marcus Valerius Corvinus* compleated an hundred Years, there being forty-six Years between his first and sixth Consulship; he was a Man full of Courage, affable, popular, and always fortunate and sober, observing constantly a cool and moderate Diet.

Solon of *Athens*, the Law-giver, and one of the seven Wise Men, liv'd above eighty Years; a Man of high Courage, popular, and well affected to his Country; he was also

learned, given to Pleasures, but always moderate in his Diet. *Epimenides* the *Cretan* is reported to have lived an hundred and fifty-seven Years: this Matter is mix'd with a prodigious odd Relation; for he is said to have slept fifty-seven of those Years in a Cave. Half an Age after, *Xenophanes* the *Colophonian* lived an hundred and two Years, or rather more; for at the Age of twenty five Years he left his Country, seventy-seven complete Years he travel'd, and after that return'd: A Man no less wandering in Mind than in Body; for his Name was chang'd, for the Madness of his Opinions, from *Xenophanes* to *Xenomanes*; a Man no doubt of a vast Conceit, and that minded nothing but *Infinities*.

Pindarus, the *Theban*, lived to eighty Years. He was a Poet of an high Fancy, singular in his Conceits, and a great Adorer of the Gods, but a sober Man. *Sophocles*, the *Athenian*, attain'd to the like Age; a lofty tragick Poet, given over wholly to Writing, and neglectful of his own Family.

Artaxerxes, King of *Persia*, lived ninety-four Years; a Man of dull Wit, averse from the Dispatch of Business, desirous of Glory, but rather of Ease. At the same time lived *Agessilaus*, King of *Sparta*, to eighty-four Years of Age; a moderate Prince, as being a Philosopher amongst Kings; but notwithstanding ambitious, and a Warrior, and no less stout in War than in Business.

Gorgias,

Gorgias, the *Sicilian*, was an hundred and eight Years old. He was a *Rhetorician*, and a great Boaster of his Faculty, one that taught Youth for Profit. He had seen many Countries; and, a little before his Death, said, that he had done nothing worthy of Blame since he was an old Man. *Protagoras* of *Abdera* lived ninety Years: This Man was likewise a *Rhetorician*; but profess'd not to teach so much the liberal Arts, as the Art of governing Commonwealths and States; notwithstanding he was no less a Wanderer in the World than *Gorgias* already mention'd. *Isocrates*, the *Athenian*, lived ninety-eight Years: He was likewise a *Rhetorician*, but an exceeding modest Man, one that shun'd the publick Light, and open'd his School only in his own House. *Democritus*, of *Abdera*, reach'd to an hundred and nine Years: He was a great Philosopher, and, if ever any Man amongst the *Grecians*, a true Naturalist; a Surveyor of many Countries, but much more of Nature. He was also a diligent Searcher into Experiments, and, as *Aristotle* objected against him, one that follow'd Similitudes more than the Laws of Arguments.

Diogenes, the *Sinopean*, lived ninety Years, was a Man that us'd Liberty towards others, but Tyranny over himself; he lived upon a coarse Diet, and was a Pattern of Patience.

Zeno, of *Citium*, wanted but two Years of an hundred; a Man of high Mind, and a Contemner of other Men's Opinions. He

was also a Man of great Acuteness, but yet not troublesome, chusing rather to take Men's Minds than to enforce them ; the like whereof happen'd afterwards in *Seneca*.

Plato, the *Athenian*, attain'd to eighty-one Years ; a Man of great Courage, but yet a Lover of Ease. He was in his Notions sublime and full of Fancy, neat and delicate in his Life, rather calm than merry, and one that carried a kind of Majesty in his Countenance, and a strict Observer of Moderation in his Diet.

Theophrastus, the *Ethesian*, lived eighty Years ; a Man of sweet Eloquence, and sweet also for the Variety of his Subjects, and who selected the pleasant Things of Philosophy, and let the bitter and harsh go. *Carneades* of *Cyrene*, many Years after, attain'd to the like Age ; a Man of fluent Eloquence, and one who, by the acceptable and pleasant Variety of his Knowledge, delighted himself and others. But *Orbilius*, who lived in *Cicero's* time, no Philosopher nor Rhetorician, but a Grammarian, lived to the Age of an hundred Years. He was first a Soldier, then a Schoolmaster ; a Man by Nature tart both in his Tongue and Pen, and severe towards his Scholars.

Quintus Fabius Maximus was *Augur* sixty-three Years, which shew'd him to be above eighty Years of Age at his Death ; tho' it is true, that in the *Augurship* Nobility was more respected than Age. He was a wise
Man,

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Man, and a great Deliberator, and in all his Proceedings moderate, not without Affability, severe. *Masinissa*, King of *Numidia*, lived ninety Years; and, being more than eighty-five, got a Son. He was a daring Man, and trusting to his Fortune, who in his youthful Days had tasted of her Inconstancy; but in his succeeding Age was constantly happy. But *Marcus Porcius Cato* lived above ninety Years of Age; a Man of an Iron Body and Mind. He had a bitter Tongue, and loved to cherish Factions. He was given to Husbandry, and was, to himself and his Family, a Physician.

Terentia, *Cicero's* Wife, lived an hundred and three Years. She was a Woman afflicted with many Crosses; first with the Banishment of her Husband, then with the Difference betwixt them, and lastly with his last fatal Misfortune. She was also very often troubled with the Gout.

Luccia, the Actress, must needs exceed an hundred by many Years; for it is said, that she acted a whole hundred Years upon the Stage; at first perhaps representing the Person of some young Girl, and at last of some old decrepit Woman.

Galeria Copiola, a Player also and Dancer, was brought upon the Stage very young, but in what Year of her Age is not known; and ninety-nine Years after, at the *Dedication* of the Theatre by *Pompey the Great*, she was shewn upon the Stage again; not now for

an Actress, but for a Wonder; neither was this all, for after that she was shewn a third time upon the Stage in the Solemnities celebrated for the Health and Life of *Augustus*. She is reckon'd to have liv'd sober and virtuous from her Youth.

There was another Actress somewhat inferior in Age, but much superior in Dignity, who liv'd very near ninety Years, I mean *Livia Julia Augusta*, Wife of *Augustus Cæsar*, and Mother to *Tiberius* (for if *Augustus's* Life was a Play, as he himself would have it, as when upon his Death-bed he charg'd his Friends that they would give him a *Plaudite* after he was dead) certainly this Lady was an excellent Actress, who could carry it so well with her Husband, by a dissembled Obedience, and with her Son, by Power and Authority; she was an affable Woman, and yet of a Motherly Carriage, pragmatical, and upholding her Power. But *Junia*, the Wife of *Caius Cassius*, Sister to *Marcus Brutus*, was also ninety Years old; for she surviv'd the *Philippic* Battle sixty-four Years. She was a magnanimous Woman, in her great Wealth happy; in the Calamity of her Husband and near Relations, and in a long Widowhood, unhappy; yet much honour'd by all, for her Sobriety and Virtue.

The Year of our Lord seventy-six, happening in the time of *Vespasian*, is memorable, in which we shall find as it were a Calendar of long Lives; for that Year there
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was a *Taxing*; (now *Taxing* is the most authentic and truest Informer as to People's Ages) and in that Part of *Italy* which lies between the *Apennine* Mountains and the River *Po*, there were found an hundred and twenty-four Persons, that each of them either equalled or exceeded an hundred Years of Age; namely, fifty-four Persons of an hundred Years each; fifty-seven Persons of an hundred and ten; two only of an hundred and twenty-five; four Men of an hundred and thirty; four more of an hundred and thirty-five or seven; three Men of an hundred and forty.

Besides these, *Parma* in particular produc'd five, whereof three fulfilled an hundred and twenty years each, and two an hundred and thirty. *Bruxels* produc'd one of an hundred and twenty-five years old, *Placentia* one aged an hundred and thirty-two. *Faventia* one Woman, aged an hundred and thirty-two. A certain Town situated in the Hills about *Placentia*, then called *Velleiacium*, afforded ten, whereof six fulfilled an hundred and ten Years each, and four an hundred and twenty Years of Age each. Lastly, *Rimino* one of an hundred and fifty years, whose Name was *Marcus Aponius*. And it will not be amiss to acquaint the Reader here, that all upon this foregoing List observ'd Temperance and Sobriety during most part of their Lives.

As there are but few found among all the *Grecian, Roman, Gallick and German Emperors* to our Days, that have lived to the Age of fourscore Years, and none that exceeded ninety ; I will not therefore trouble the Reader with any farther Account of them, but proceed to the Princes of the Church.

St. *John*, an Apostle of our *Saviour*, and the beloved *Disciple*, liv'd ninety-three Years ; he was rightly denoted under the *Emblem* of the *Eagle*, for his piercing Sight into the *Divinity*, and was as a *Seraphim* among the Apostles, in respect of his burning Love. St. *Luke* the Evangelist compleated eighty-four Years ; an eloquent Man, and a Traveller ; St. *Paul's* inseparable Companion, and a Physician. *Simeon* the Son of *Cleophas*, called the Brother of our Lord, and Bishop of *Hierusalem*, liv'd an hundred and twenty Years, tho' he was cut off at last by Martyrdom ; he was a stout Man, constant, and full of good Works.

Dionysius Areopagita, Contemporary to St. *Paul* the Apostle, liv'd ninety Years ; he was called *the Bird of Heaven* for his sublime Divinity, and was famous as well for his holy Life, as for his Meditations. *Aquila* and *Priscilla*, first St. *Paul's* Hosts, and afterwards his Fellow-helpers, lived together in happy Wedlock at least to an hundred Years of Age apiece ; for they were both alive under Pope *Xystus* the first ; a noble Pair,

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Pair, and prone to all kinds of Charity, who among their other Comforts, which doubtless were great to the first Founders of the Church, had this added, to enjoy each other so long in a happy married State.

St. *Paul* the *Hermit* lived an hundred and thirteen Years; his Diet was so slender and strict, that it was thought almost impossible to support human Nature therewith: he passed his Days in a Cave, only in Meditations and Soliloquies, yet he was not illiterate, or an Idiot, but learned. St. *Hierome*, by the Consent of most Writers, exceeded ninety Years of Age; a Man powerful in his Pen, and of a manly Eloquence, variously learn'd, both in the Languages and Sciences, also a Traveller, and lived strictly towards his old Age in a private State, and not dignified; he had high Spirits, and shined far out of Obscurity.

St. *Anthony* the *Monk* lived to the Age of an hundred and five Years; his Life was austere and mortifying, notwithstanding he lived in a kind of glorious Solitude, and exercised a Command, having his Monks under him, and besides many *Christians* and *Philosophers* came to visit him as a living Image worthy of their Veneration, on account of his holy Life and pious Works.

St. *Athanasius* exceeded the Term of eighty Years; he was a Man of invincible *Constancy*, commanding *Fame*, and not yielding to the Frowns of Fortune; he was free towards the
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Great, gracious and acceptable to the People, wise and couragious in delivering himself from Oppositions, and always leading an abstemious and religious Life.

The *Popes* of *Rome* are in number to this Day 246; but of so great a number, few only have attain'd to the Age of 80, or upwards, as I could find recorded in History: yet the full Age of twenty-eight of the first *Popes* was intercepted by the Prerogative and Crown of *Martyrdom*.

John, the twenty-third Pope of *Rome*, fulfilled the ninetieth Year of his Age; he was abstemious and frugal, an Enemy to Luxury, and acquir'd a good deal of Riches and Treasure for the Support of the Church; he alter'd many Things much for the better.

Gregory the twelfth, created in *Schism*, and not fully acknowledg'd *Pope*, died ninety Years old; of him, in respect of his short *Papacy*, there is nothing found in History to make a Judgment upon, but that he liv'd strictly virtuous and abstemious.

Paul the third lived eighty-one Years; he was a temperate Man, and of profound Wisdom and Learning, greatly skill'd in *Astronomy*, and always careful of his own Health.

Paul the fourth liv'd eighty-three Years; he was a Man naturally tart, and somewhat severe, and a little prone to Anger; his Speech was eloquent and ready, his Diet was always lean, thin, and cool, by which means he kept

kept his Passions under Subjection, and arriv'd at that good old Age with all his Senses.

Gregory the thirteenth liv'd to the same Age, and was absolutely a good and great Man, sound in Mind and Body, politick, temperate, religious, full of good Works, and a great Alms-giver.

The following Instances are more promiscuous in their Order, and more doubtful as to the Certainty of their Ages. King *Arganthonius*, who reigned at *Cadiz* in *Spain*, lived an hundred and forty Years, according to some Historians, of which he reigned eighty Years. *Cyniras* King of *Cyprus*, living in the Island then called the happy and pleasant Island, is affirmed to have lived an hundred and sixty Years. Two *Latin* Kings in *Italy*, the Father and Son, are reported to have lived, the one eight hundred Years, and the other six hundred: But this Account is deliver'd unto us by certain *Philologists*, who tho' otherwise credulous enough, yet they themselves have suspected the Veracity of this matter. Others record some *Arcadian* Kings to have lived three hundred Years; the Country no doubt is a Place apt for long Life, but the Relation is justly suspected to be fabulous.

One *Dando*, in *Illyrium*, is reported to have lived without the Inconveniency of Old-Age, to five hundred Years; but the judicious Reader will make the necessary Allowance.

Hippocrates

Hippocrates of *Côs*, the Prince of Physicians, lived an hundred and four Years, or according to some, an hundred and nine: He was skill'd in the several Particulars requisite for the Knowledge of Physick, and provided with numerous Observations of his own, composed out of the whole a System of Physick, and was the first that truly deserved the Title of Physician: He joined Learning and Wisdom together, was most conversant in Experience and Observation, and did not hunt after Words, but severed the very Nerves of Science, and so taught them.

Euphrænor the *Grammarian* grew old in his School, and taught when he was an hundred Years old. *Seneca*, according to some accounts, lived to an hundred and fourteen Years of Age. But *Joannes de Temporibus*, among all the Men of our latter Ages, according to common Fame and vulgar Opinion, lived the longest, even to a Miracle; his Age being reputed to be above three hundred Years: He was a Native of *France*, and followed the Wars under *Charles* the Great.

Among the *Venetians* there have been found a great many long Livers, and those of the more eminent sort of the People; but the most memorable is that of *Cornaro*, who being in his Youth a sickly Person, began first to eat and drink by measure, to a certain Weight, to recover his Health thereby; this Cure, by Use, turn'd into a Diet,
that

that Diet into an extraordinary long Life, even of an hundred Years and better, without any Decay in his Senses, and a constant Enjoyment of his Health.

In latter times, *William Postell*, a *French* Man, lived to an hundred and twenty Years; he was a Man somewhat crazy, and of a Fancy not altogether sound, a great Traveller and Mathematician.

Henry Jenkins, a *Yorkshire* Man, attain'd the Age of one hundred sixty-nine Years; he was twelve Years old when the Battle of *Flowden-field* was fought, which happen'd upon the 9th of *September*, in the Year of our Lord 1513, and departed this Life the 8th of *December* 1670, at *Ellerton* upon *Swale*. This *Henry Jenkins* was a poor Man, could neither Read nor Write; there were also four or five in the same Parish where he then liv'd, that were reputed all of them to be an hundred Years old, or within two or three Years of it, and they all affirm'd he was an elderly Man ever since they knew him, for he was born in another Parish, and before any Registers were in Churches, as it is thought. In the last Century of his Life he was a Fisherman, and used to wade in the Streams. His Diet was coarse and sower, but towards the latter End of his Days, he begg'd up and down. He hath sworn in *Chancery* and other Courts to above 140 Years Memory, and was often at the Affizes at *York*, whither he generally went on foot.

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It was likewise affirm'd by some of the Country Gentlemen, that he frequently swam in the Rivers after he was past the Age of an hundred years. *

Thomas Parr was a poor Countryman of *Shropshire*, whence he was brought up to *London* by *Thomas Earl of Arundel and Surry*, and died at the Age of 152 Years, 9 Months, after surviving nine Princes. Nov. 6, 1635, being open'd after his Death by *Dr. Harvey*, his Body was found still very fleshy, his Breast hairy, his Genitals unimpaired, and they served to confirm the Report of his having undergone public Censures for his Incontinency. At the Age of one hundred and twenty he married a Widow, who owned he acted the Part of a Man, and that for twelve Years after. He had a large Breast, Lungs not fungous, but sticking to his Ribs, and distended with much Blood; his Face livid, having had a Difficulty of breathing a little before his Death, and a lasting Warmth in his Arm-pits and Breast after it. His Heart was great, thick, fibrous and fat; the Blood in the Heart blackish and diluted, the Cartilages of the *Sternum* not more boney than in others, but flexible and soft; his *Viscera* were found and strong, especially his Stomach; and it was observ'd of him, that he used to eat often both by Day and by Night, taking up with old Cheese, Milk, coarse Bread,

* An Abstract of *Dr. Tancred Robinson's* Letter, giving an Account of *Jenkins's* Age.

Small-beer, and Whey; and which is more remarkable, he eat at Midnight a little before he died. All his inward Parts appear'd so sound, that if he had not chang'd his Diet and *Air*, he might in all Probability have liv'd a great while longer. His Brain was entire and firm; and tho' he had not the Use of his Sight, or of his Memory, several Years before he died, yet he had his Hearing and Apprehension very well, and was able, to the 130th Year of his Age, to do any Husbandman's Work, even Threshing of Corn. *

Francisco Lupatsoli, a *Venetian* Consul at *Smyrna*, lived 113 Years, and had by his Wives and other Women, fifty Children; he drank nothing but Water and Milk, sometimes a small Sherbet; his usual Diet was small Soups of Flesh, sometimes of Bread, Water and Figs. He saw at that Age without *Spectacles*, and could hear well; he drank neither Tea, Coffee, Chocolate, nor any fermented Liquor, as Mr. *Ray*, then *English* Consul there, relates; and farther adds, that he saw a Tooth cut in his upper Gum at that great Age.

In the Life of the great *Aurengzebe*, one of the late *Moguls*, we have such a notable and shining Example of Abstemiousness, Continency, and many other Virtues, as may well recommend this *Royal Infidel* to the Admiration and Imitation of all *Christian Princes* upon Earth; wherefore I make no
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* Phil. Trans. No. 44. p. 886.

Doubt but the following Account of that Emperor will no less instruct, than entertain the Reader.

There was no Part then of this great Prince's Time, which he did not assign to some useful Purpose ; for early in the Morning, before break of Day, he bathed, and spent some Hours at his Devotions; then having eaten a little *Rice* or *Sweet-meats*, he shut himself up with his Secretaries, and before Noon he gave publick Audience to his Subjects ; after which he pray'd again, and then went to Dinner, his Table being furnish'd only with *Rice*, *Herbs*, *Fruits*, or *Sweet-meats*, for neither *Flesh* or *Fish*, or any *strong Liquors* were ever brought before him. In the Afternoon he gave Audience again, which being over, he prayed a third and a fourth time ; and the remainder of the Day, till two Hours after it was dark, he spent in the private Concerns of his own Family ; then he supp'd, and slept afterwards only three Hours, after which, it is said, he read the *Alcoran*, and pray'd all the remaining Part of the Night. And here we have a remarkable Instance of what vast Advantage an abstemious regular Course of Life is towards procuring *Health* and *long Life*, and rendering a Prince always fit for the most important and intricate Affairs ; for this Emperor, notwithstanding he was an indefatigable Hearer of Causes, and constantly directed the Affairs of so vast an Empire, and conquer'd several

veral large Kingdoms, lived without contracting any Distemper; neither his Judgment, Memory, or other Senses, were at all impair'd when he was ninety Years of Age.

Aurengzebe, it is true, had several hundreds of fine blooming *Girls* in his *Haram*, or *Seraglio*, as all Eastern Princes have; but these seem to have been kept only for State, or in Conformity with the Custom of the Country; for it is related of him, that even in his Youth, having singled out a young Lady in the *Haram* to lie with him one Night, and she had dressed and prepar'd herself to receive her Royal Lover, the King coming into the Apartment at the appointed Hour, instead of going to Bed, fell to reading, and between his Books and his Devotions he passed the whole Night, without ever taking Notice of the expecting Lady.

When the *Eunuch* came the next Morning to acquaint the Emperor that his Bath was ready, which is ever used by the *Mahometans* when they have been with their Women, the Lady answer'd, *There was no need of a Bath, for the Sultan had not broke Wind*, intimating that he had been at his Prayers; for if a *Mahometan* has the Misfortune to break Wind at his Prayers, then he immediately bathes, looking upon himself to be too much polluted to go on with his Devotions, till he has washed off the Impurity contracted by such an Accident.

From this short Account of the Life of a *Mahometan Prince*, we may learn an exceeding useful Lesson, worthy of being imitated by all Christian Princes and others, who value *Health* and *long Life*; for notwithstanding he was depriv'd of the Light of Gospel Truth, yet so strong were his Notions of a Supreme *Being*, that he most constantly and, fervently adored that *Being*, by which means he led a Life religiously abstemious, conquer'd and regulated the Surges of the rest of his Passions, amidst so many Allurements and Temptations of numbers of fine blooming Ladies, vast Riches, Power and Grandeur, which he always had at his Will without Controul, and like a true Christian Hero, preferr'd the Adoration of his *Creator*, and the Preservation of his Health, to all the Pleasures which his vast Dominions and great Power could afford him.

Richard Lloyd, born within two Miles of *Montgomery*, was aged 133 Years within two Months; he was a strong, strait, and upright Man, wanted no Teeth, had no grey Hairs, could hear well, and read without Glasses; he was fleshy, and full cheek'd, and the Calves of his Legs not wasted or shrunk, could talk well, and was of a tall Stature: his Food was Bread, Cheese, and Butter, for the most Part, and his Drink Whey, Butter-milk, or Water, and nothing else; but being perswaded by a neighbouring Gentlewoman to eat *Flesh Meat*, and drink *Malt Liquors*,

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Liquors, soon fell off and died. He was a poor labouring Man in Husbandry, and the Truth of his great Age has been confirm'd to Dr. *Baynard* and others, by a produc'd Copy of the Register.

John Bailes of *Northampton*, was 128 Years and a half old when Dr. *Baynard* examin'd him: he was a short broad-breasted Man; his Food was for the most part brown Bread and Cheese; he cared not much for Flesh Meats; he was never drunk in his Life, and his Drink was Water, Small-beer, and Milk. He told the Dr. that he had buried the whole Town of *Northampton*, except three or four, twenty times over; strong Drink, says the old Man, kills them all. He was a sensible old Fellow, and had no Disease but Blindness, which Misfortune he did not experience above four or five Years before his Death.

Mr. *Martin*, in his Description of the Western Islands of *Scotland*, says, that *Donald Roy*, who lived in the Island of *Sand*, where they have neither Physic nor Physician, died lately in the hundredth Year of his Age, and was able to travel and manage his Affairs till about two Years before his Death.

He makes mention of one that died some Years before, aged one hundred and forty; and of another, who, they said, died at one hundred and eighty Years of Age.

Mrs. *Hudson*, Mother to Mr. *George Hudson*, a Solicitor in *Chancery*, lived an hundred

and five Years, and then died of an acute Disease, by catching Cold : her Eyes were so very good, that she could see to thread a Needle at that great Age ; her Food was little or nothing else all her Life-time, but Bread and Milk.

Mr. *Johnston*, the Father of Dr. *Johnston* of *Warwick*, who was always a strong and lusty Man, died at an hundred and eleven Years : his usual Drink was Milk and Ale, or Milk and Small-beer mix'd together.

An Inscription on the Tomb-stone of Margaret Scot, who died at Dalkeith, twelve Miles from Newcastle, Feb. 9, 1738.

Stop, Passenger, until my Life you've read,
The Living may get Knowledge by the Dead.
Five times five Years I liv'd a Virgin Life,
Ten times five Years I was a virtuous Wife ;
Ten times five Years I liv'd a Widow chaste,
Now, tir'd of this mortal Life, I rest.
I, from my Cradle to my Grave, have seen
Eight mighty Kings of *Scotland*, and a Queen.
Four times five Years the Common-wealth I saw,
Ten times the Subjects rose against the Law.
Twice did I see old Prelacy pull'd down,
And twice the Cloak was humbl'd by the Gown.
An End of *Stuart's* Race I saw : no more,
I saw my Country sold for *English* Ore.
Such Desolations in my Time have been,
I have an End of all Perfection seen.

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Margaret Paten, born at *Locknugh* near *Paisly* in *Scotland*, died in *St. Margaret's Workhouse Westminster*, *June 26, 1739*, at the Age of one hundred thirty-eight Years, and enjoy'd the Use of all her Senses to her very last Hours. She lived the most Part of her Life upon Oat-bread, Butter, Milk, and Roots, especially in her own Country; but here in *England* she indulg'd herself with the moderate Use of Flesh, and fermented Liquors.

January 1743, died at *Ludlow* in *Shropshire*, one *Bright*, aged one hundred and five, who had his Memory and Eye-sight to the last, infomuch that he could discern to pick a Pin off the Ground. He was called the second old *Parr*, and was born and always liv'd in the same County; his Food was, for the most part, coarse Bread, Cheese, Milk, Butter, Small-Beer, or Water.

February 1743, died in *St. Luke's Workhouse, London*, *Mrs. Agnes Milbourn*, one hundred and six Years of Age; she had 29 Sons and a Daughter by one Husband, 20 of whom she has had following her to Church at a time for several Years, but out-lived all her Children and Grand-children, save only one Grand-son. She religiously observ'd Temperance, and always avoided the Use of Spirituous Liquors as Poison; her usual Drink was Milk, Ale, or Small-Beer.

From these Instances it is manifest, that Milk is of a salubrious, safe and sweet Nou-

rishment, as also by the many Nations before and since the Flood, that eat much of it, and lived to great Ages, of which numberless Examples may be found both in sacred and profane History, to confirm the Doctrine of Temperance and a cool Diet, as absolutely necessary to the Prolongation of Life; but, as Dr. *Baynard* rightly observes, if an Angel from Heaven should come down and preach it, one Bottle of *Burgundy*, or a full flowing Bowl of *Punch*, would be of more Force with this *Claret-stew'd* Generation, than ten Ton of *Arguments* to the contrary, tho' never so demonstrable and divine.

By what has been said thro' the Course of this Chapter, we see, that from the Time of *Moses* to our Days, the Term of Man's Life has stood much about the same Standard of Years, (a few Lives here and there being excepted:) so it evidently appears, that the Continuation and Number of Successions of Generations, make nothing to the Length or Shortness of Life, tho' a great many People imagine the contrary. It is certain however, that there are Times in all Countries, wherein People are longer or shorter liv'd: longer, for the most part, when the Times are barbarous, and Men fare less deliciously, and are more given to bodily Exercises: shorter, when the Times are more civiliz'd, and People abandon themselves to *Luxury* and *Ease*. Therefore from what has been hitherto

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to advanc'd, it is likewise evident to a Demonstration, that Temperance, moderate Exercise, and a cool Diet, are absolutely requisite for the Preservation of Health and long Life, as I shall shew more at large in the Sequel.

The same, no doubt, happens in other living Creatures; for neither Horses, Oxen, nor Sheep, are abridg'd of their usual Ages, even at this Day; and therefore the great Abridger of Age was certainly the *Deluge*; and perhaps some notable Accidents, such as *Inundations*, universal *Droughts*, *Earthquakes*, or the like, may produce the same Effect again.

And the like Reason may be given, in regard of the Dimension and Stature of human Bodies; for they are not lessen'd by the Succession of Generations, notwithstanding what *Virgil* (led by the vulgar Opinion) divin'd, that After-ages would bring forth less Bodies than those in his time; whereupon he says, *Grandiaque effossis mirabitur ossa Sepulchris*; that is, After-ages shall admire the great Bones dug out of ancient Sepulchers. But tho' it is not denied that there were, some time before the *Flood*, Men of *Gigantic* Stature, (the Bones of such as, for certain, have been found in ancient Sepulchers and Caves in *Sicily*, and elsewhere :) yet for these last three thousand Years, a Time whereof we have authentic *Records*, no such have been produc'd in those Places, nor indeed any where else; for which Reason it is evident, that they are
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very much mistaken, who are wholly carried away with an Opinion, that (by Succession of Ages) there is a continual Decay, as well in the Term of Man's Life, as in the Stature and Strength of his Body ; and that all things decline, and change to the worse.

Therefore, as the Succession of Generations contributes little or nothing, either to the Length or Brevity of Life, as appears from what has been said already, yet the immediate *Condition* of the Parents, without doubt, conduces very much to it ; for some are begotten of old Men, some of young Men, some of middle-aged Men ; again, some are begotten of healthful Fathers, and well disposed, others of diseased and languishing ones ; again, some of Fathers after Repletion, or when they are drunk ; others after Sleeping, or in the Morning ; others again, after a long Intermission of *Venus*, some upon the *Act* repeated ; again, some in the Fervency of the Father's Love ; others after the cooling of it, as happens in long-married People.

The same things ought to be consider'd on the Part of the Mother ; to which we must add her Condition during her Pregnancy, as concerning her Health, her Diet, and manner of living ; the time of her bearing in the Womb, as to the seventh, eighth, ninth, or tenth Month. But to reduce all these things to a Rule, how far they concern *long Life*, is difficult ; for those things which we often conceive to be the best, fall out to the contrary ;

trary; as for Instance, that Alacrity in a Generation that begets lusty and lively Children, will be less profitable to long Life, because of the Acrimony and inflaming of the Spirits, which soon dissipate, and leave the Body dry and wither'd: so that the best Rule is to use Moderation in all things, conjugal Love rather than an unlawful one; the best time for Generation being in the Morning, or after a due Concoction of our Aliments, and after Sleep, but never when the Body is in a languishing or sickly State, or too much fatigued.





A

GUIDE *to* Health, &c.

P A R T II.

I N T R O D U C T I O N.

AS the principal and inevitable Causes of Old Age, and finally of our Dissolution, are three, *viz.* * *the Contrariety of the Principles of our Composition*, the Actions inseparable from Life, called *Animal Actions*, and the *Excrements*, which are unavoidably engender'd by Aliment in our Bodies; therefore we must (if we would preserve the Body in a good State, and guard ourselves against the too quick Approaches of old Age) dispose these three things in such a manner, that the Harmony and Union of our *Principles*, which are called *Temperament*, be well supported, that the *Spirits* which are dissipated every Moment be repair'd, and the *Excrements* retain'd in the Body be expell'd.

All this may be easily obtain'd by the means of a good *Regimen*, without the Assistance of any Medicine: and this *Regimen* comprehends many things, which are all reduc'd to

* See the Explication of these three things at large, in Chap. II. Part. I.

to six general Heads. They are called, by the Physicians, *Nonnaturals*; because, if we manage them with Dexterity, and make proper use of them, they preserve Health, and may be called *Naturals*; but if they are abused, or fall short, or exceed a just Proportion in the least, they cause Distempers, and, in that Sense, may be said to be against *Nature*. These *Nonnaturals* are, *Air, Meat and Drink, Sleeping and Watching, Motion and Rest, Retention and Excretion, and the Passions of the Mind*; of which I shall now discourse in order.



C H A P. I.

Of the Nature of AIR.

IN order to account for the different Effects, and Influence of Air upon Human Bodies, in the following Discourse, it is necessary to premise in this Place, that Air, (according to its Nature, and the *Idea* we can form of it) is, that thin and invisible Fluid, in constant Motion, wherein we breathe and move, encompassing the Earth and Seas on every side, and containing the Vapours, Clouds, and other Meteors; the whole Body of which is called the * *Atmosphere*;

* From the Greek Words, Ἀτμός a Vapour, and Σφαῖρα, a Sphere; so that *Atmosphere* in English, is a round Body of Vapours; and such is the *Air* surrounding the Earth, as being constantly repleat with Vapours exhaled by the Rays of the Sun.

sphere ; and that it is the principal Instrument of *Nature* in all its Operations : for no *Vegetable*, *Animal*, *Terrestrial*, or *Aquatic* can be produced, live, or grow without it : So that *Air* is the chief Instrument in the *Generation*, *Resolution*, *Accretion* and *Corruption* of all terrestrial Bodies ; for it is certainly true, that it enters into every Composition, more or less, of all Fluids and Solids, all which produce great Quantities of *Air*.

The lower Parts of the *Air*, in which all Animals live and breathe, are impregnated with an infinite Variety of the Effluvia, Steams, and Particles of terrestrial, aqueous, metalline, vegetable and animal Substances, which, by Attrition, become so small and light as to float in it. Hence it is evident, that the *Air* must be differently impregnated in different Places of the Surface of the Earth, which produce considerable Alterations in its State, whereby human Bodies are differently affected, as will plainly appear hereafter.

Water being an Ingredient of the *Air*, is continually exhaled, and as continually descends ; for when the *Air* is overcharged with it, it returns again, and falls upon the Surface of the Earth, in Rain, Hail, Snow or Dew ; but the Dew falls chiefly when the Sun is down.

Earth, when calcined, flies off into the *Air* ; and the Ashes of *Vulcanos* or burning Mountains : Likewise Salts of all kinds are ingredients of *Air* ; for even fixed *fossil* Salts may

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may be digested, and thereby rendered volatile, and evaporate into the *Air*. There are besides Particles of all *Minerals* whatever in the *Air*; even Gold, the most compact and heaviest of them, can be evaporated and exhaled into *Air*, as will be made appear in the latter End of this Chapter.

The Smoke and Fumes which are raised by natural or artificial Fires, all vanish into the *Air*. The Steams of fermenting Liquors, and the poisonous Fumes of Mines, impregnated with sulphureous Exhalations, and combin'd with different *Salts*, or *Metalline* Particles, which are stinking, oily, and inflammable, evaporate into the *Air*, and make up part of its Contents; which must necessarily so alter its Constitution, as to render it not only insalubrious, but even pernicious to every Animal that breathes in it.

The watery Exhalations, with the fragrant and volatile Spirit of all Vegetables, being Ingredients of the *Air*, contribute very much towards its Salubrity, or Insalubrity, as well when growing, as when cut down and in a decaying State; for the most volatile parts of Vegetables will evaporate into the *Air*, by a Degree of Heat much less than that of Summer; as is evident both by *Chymistry** and the sense of our own Smelling; for spicy Odours are smelt at a great Distance from the Countries where the *Spices* grow; so that the Quantity of vegetable *Perspiration* must be very considerable in Summer-time; and
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* *Boerhaave* Chem. vol. 2. Process. I.

by the Reverend Dr. *Hale's* * Experiments we are farther convinced, that Vegetables of all kinds perspire Particles which float in the *Air*, and are either wholesome or destructive to human Bodies, according to their different Qualities. Hence we may infer, that upon the account of the Perspiration of Vegetables, the Summer *Air* must be very different from that of the Winter.

Animal *Perspiration* is another Ingredient of the *Air*, as well as the *Effluvia* of all their other Excrements, which oftentimes infect that Part of the *Atmosphere*, as to produce *pestilential* Diseases. The *Perspiration* of a human Body, according to Mr. *Hale's* † Computation, is about $\frac{1}{50}$ Part of a Inch in 24 Hours all over the Surface of the Body; and the Quantity of the Moisture, by Respiration from the Lungs, he computes at 9792 Grains, or 1. 39, in 24 Hours; § the Surface of the Body he computes at 2160 square Inches, or 15 square Feet, consequently the Surface of the Skins of 2904 such Bodies, would cover an Acre of Ground, and would make an *Atmosphere* of the Steams of their own Bodies about 71 Foot high in 34 Days, which would become *Pestiferous* in a Moment, if not dispersed by Winds.

The great Quantity of Animal Substances imbibed into the *Air*, farther appears from this, that

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* *Hale's* Veg. Stat. p. 49, 50.

† Veg. Stat. p. 11. Exp. 1.

§ *Hæmalt.* p. 326. p. 328.

that all the Excrements of all the Carcasses of Animals, such as those that are burnt, those that are exposed later, and those that are buried, in length of Time all vanish into *Air* at last, except a small Quantity of Bones, which turn into Earth. From hence we may infer, that living in great and populous Cities, or in *Camps*, or near Numbers of dead Carcasses in a hot or sultry Season, may infect that *Air* so far, as to dispose the People to *putrid* and *malignant* Fevers, of which we have several Instances in History, too tedious to insert in this Place.

And though Nature makes use of all possible Means to preserve the Mass of this *heterogeneous* Fluid, wherein we breathe, in a wholesome State; yet it must necessarily happen, that the *Air* of particular Regions, Seasons and Places may differ very much in the Proportions of the Mixture of Ingredients already mentioned; so that such *Air* must affect human Bodies variously, by such Excesses or Defects: For *Air*, when too moist, affects us with one Class of Diseases; and when too dry, with another. Air impregnated with the Effluvia of Animals, especially of such as are rotting, has often produced *pestilential* Diseases in that Place, as we find by Experience: for the Inhabitants of such Countries, where great Numbers of Men have been slain in Battle, and left unburied, were soon after infested with *pestilential* Distempers; as that which hap-

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pened * at *Massaniffa*, where 80,000 Persons were destroyed, and at *Utica*, wherein 30,000 Persons died of the Plague. That mentioned by † *Livy*, which invaded the greatest Part of *Italy*, owed its rise to the dead Bodies of the *Romans* and *Fidenates* left unburied in the Field of Battle. The Plague mentioned by *Ambrose Paree*, 1562 §, was occasioned by *Carcasses* thrown into a Ditch. Great Quantities of dead *Locusts* driven into the Sea, by Winds, and from thence cast up in Heaps on the Shore by the Waves, produced the same Effects, as *Diodorus Siculus* relates: And likewise the Steams of great Quantities of corrupted Vegetables have produced the like Effects in their Neighbourhood. The Steams and Effluvia of human living Creatures are extremely corruptible, as has been observed already; and likewise the Water in which human Bodies wash and bathe, by keeping, smells cadaverous, a great part of which evaporates into the *Air*.

From hence we may conclude, that it will be of the utmost Consequence to every one, to take care what kind of Air it is they sleep and wake, breathe and live in, and are perpetually receiving into the most intimate Union with the Principles of Life; for as the *Air* being attracted, received into our Bodies, and mixed with our Fluids every

Instant

* Sanc. August. lib. 3. de Civit. Dei Cap. 31.

† Histor. Roman.

§ Lib. 21. de Peste.

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Instant of our Lives, any ill Quality abounding in it, so continually introduced, must in Time cause fatal Effects in the *Animal Oeconomy*.

The first Consideration then, in Building of Houses and Cities, should be, to make them open and airy, and well perflated; therefore we should never build upon high Hills, very near any great Confluence of Water, or in the Neighbourhood of any great *Mines*, near Beds of *Minerals*, or on marshy or mossy Foundations; but either in a *champaign* Country, or on the side of some small Eminence, sheltered from the North and East Winds, or upon a light gravelly Soil. The best Method of finding out the Nature of the Soil, will be known from the Plants and Herbs that it produces, and from the Nature of the Waters that spring out of it, which ought to be *sweet, clear, light, soft and tasteless*.

All high Hills or Mountains are damp, for it is common to see it rain or snow on Mountains, when the Valleys below are clear, dry, and serene. All great Hills are Nests of Minerals, and Covers for Reservoirs of Rain-Water, and the Clouds are only great Fleeces of rarified Water floating in the *Air*, and these high Hills intercepting them, are compressed into Rain or Dew, and are constantly straining down the Chinks of the Mountains into the Sea and other Reservoirs of Water; and Rain is allowed to be the Origin of *Rivers* and *Fresh-Water Springs*.

Springs. Moreover, these Mountainous Places are always exposed to great and almost continual Winds; and where any great Concurrence of Water is, the *Air* must needs be always damp there, because the Sun is perpetually exhaling Dews and Vapours from these Waters.

Dew is another Ingredient of the *Air*, which is not mere Water, but a Collection of the *watry, oily, saline, and volatile* Substances, exhaling and transpiring from the Earth, and are not to be seen, as long as they are agitated by the Sun, but in its Absence, and as soon as the *Air* cools, they become visible; and as the *Air* is a thin or rare Body, it cools much sooner than the Earth, which continues to transpire this Substance after Sun-set; and a great deal of it falls down again in the Form of Water, by the Cold of the Night; for it is observable, that when there is no Wind, there is a Coat of this Vapour generally to be seen near the Surface of the Earth.

Dew then, being a Composition of all the Substances that are exhaled from that Tract of Earth, must of consequence be very different in different Tracts of Ground, for which Reason, according to the learned *Boerhaave* †, the *Chymists* can never agree about the component Parts of it; because they make their Experiments upon Dews of different Places, and consequently of a different Nature of Ingredients; for
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† Chym. vol. I. pag. 471.

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in some Places it produces such volatile and explosive *Salts*, as to break Glasses in Distillation; in others it stains the Glass like the Colours of the Rain-bow, which nothing can efface.

In some Countries, as in *Bermuda* *, the *Air* being impregnated with *corrosive* Salts of different kinds, will corrode the Bricks and Tiles of Houses, and even rot the very Hangings in Rooms, as has been observed by many. The Perspiration of metalline acid Salts from certain Places of the Earth, which, upon the account of their Gravity, rise only to a certain Degree of Height, are exceedingly offensive when taken in by the Breath; for they either contract the Vesicles, or immediately coagulate the Blood in the smaller Vessels, which creep along the Surfaces of the little *Aërial Bladders* of the Lungs, that are in immediate Contact with the outward *Air*; and such are those *arsenical* Steams in the Grotto *Del Cane* near *Naples*, and in some Mines in *Carniola*, *Campania*, and at the *Cape of Good Hope*.

Of all the Collection of Ingredients in the *Air*, none are more pernicious to human Bodies, than Sulphurs; and also Charcoal Steams confined in close Places, such as Cellars and Caverns under-ground, will suffocate Animals in a Moment; but when sulphureous Vapours abound too much, then kind Nature sets them on Fire by Lightning. Sulphureous

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Vapours

* Boerhaave Chym. vol. I. p. 494.

Vapours likewise infect Vegetables, and render the Grass and Herbs very pernicious to the Cattle that feed upon it, as Mr. Jones* and others relate.

The † Observations of the *Learned* made on several Mines, give an Account, how the sulphureous Steams and Vapours differently affect and frequently destroy the Miners who work in them; some fall into *Convulsions*, *Faintings*, *Palsies*, and *Apoplexies*; others are instantly suffocated; and others again are kill'd by Explosion, resembling in its Nature that of Thunder or Gunpowder, as soon as the sulphureous Matter takes Fire: yet it must be allow'd, that Sulphur in itself, is neither unwholsome nor unfriendly to the Lungs; for the Exhalations from Tracts of Earth abounding with Sulphur, are esteem'd wholsome in the open *Air*, such as those about the City of *Naples*; but it must be observ'd, that these Exhalations are in the free and open *Air*, and not in too great Abundance, and in all Probability unmix'd with any other pernicious Salts, which those in Mines must be impregnated with.

From what has been said already, in Page 65 and 66, it must follow, that the Air in great and populous Cities differs very much from that in the Country, and that it is from offensive Smells and Fumes, among other things, that Diseases are more frequent

* Philos. Transf. vol. 2. p. 101. and likewise Philos. Transf. abridg. vol. 2. p. 180.

† Philos. Transf. vol. 2. p. 375.

quent and more dangerous in the former than they are in the latter. Great Calms have often preceded the *pestilential* Constitutions of the Seasons; hence the close and confined *Air* of Prisons often produces mortal Diseases; and in *Bays and Harbours*, the Crews of Ships turn sickly, that would be healthy in the open Seas; and the great Mortality that is so often in Camps is chiefly owing to offensive Smells and Steams; for nothing contributes more to the Production of Distempers than the infected *Air* that they breathe in, occasion'd by the Filth which is the necessary Attendant of such Places; especially at *Sieges*, where the corrupted Particles of dead Bodies, both of Men and Beasts, fill the *Air* with an intolerable Stench. Besides, the Effluvia and Steams of *Perspiration* exhal'd into the *Air*, from the Bodies of Men and other Animals, must so charge that *Air*, as to encrease its *Weight* very much; and at the same time the Heat of the Camp will weaken its *Spring* so considerably, as to render it very unfit for *Respiration*; for thereby the Blood will remain unbroken in the Lungs, and so dispose the People to those Distempers, occasion'd by a Viscidity in the Blood; such as *malignant Fevers, Dysenteries* and *Agues*.

According to the learned *Boerhaave* and others, the Eggs of Insects, and even Insects themselves very often are floating in the *Air*, and are so small as to be generally invisible by the Assistance of the best *Microscopes*,

which render the *Air* very unwholesome, and are often times the Cause of many grievous Diseases, being suck'd in with our Breath, and swallow'd down with our Food; and the low and marshy Grounds are most commonly subject to be infected with them; for there we always find great Quantities of Flies and other Insects. *Caterpillars* and other *Insects*, which eat up and destroy the Leaves of Trees and Plants, are probably produced by the Eggs of those *Insects* floating in the *Air*; otherwise we cannot easily conceive how they can be generated in the Plants themselves. Historians relate, that there are Showers of Rain sometimes in *Africk* which affect the Inhabitants with Shiverings, and that there are *Insects* found in the Drops of these Showers; hence it appears that there are Insects in the *Air*, though not visible to the naked Eye: for it has been observ'd, by the Help of Glasses, that in part of a Room illuminated with the Beams of the Sun, *Flies* are seen sometimes darting like Hawks upon a Prey.

'Tho' the Air on or near the Surface of the Earth is impregnated with an infinite Number of *beterogeneous* Particles, as appears evidently by what has been said already; yet the *wise Author* of the Universe has so temper'd this Mixture, as to render it wholesome to all the Animals that live and breathe in it, except in some few accidental Cases; for doubtless pure *Air* without any such Ingredients would

be very unfit for Animals and Vegetables to subsist in; therefore, in order to render salubrious this *Element* wherein we breathe, *infinite Wisdom* has so ordained, that the whole Mass is never overcharged with these Contents; for as human Creatures are unable to bear Excesses of any kind, such as too much *Heat*, too much Dryness or Moisture, there is a continual Circulation of Water and other Ingredients in the *Air*, and in most Places the *Air* contains near the same Quantity of Water: for as the Sum of all the Force of the Sun upon the same Surface of Land and Water, and the Heat of the Surface of Earth within the Year is very near uniform, consequently the Quantity of Exhalation is the same: And as the *Air* has a Power of imbibing and sustaining only certain Quantities of Water with other Ingredients, and the Sum of all the Quantity that falls from the *Air* over the Surface of the Earth in *Rain, Hail, Snow*, and *Dew*, is the same; yet, by accidental Causes, such as Winds, the Stoppage of the Clouds by Tracts of Mountains, more of these Exhalations or Vapours may be carried and fall in one Place than another.

This Water is again carried, by its natural Gravity, in Streams into the Sea, and other Reservoirs of Water, and from thence again exhal'd, of which there is only left a sufficient Quantity for the Nourishment of Plants and Animals, the Perspiration of whose Bodies is again exhaled; and this Circulation is constantly main-

maintained and directed by the wise Order of *Divine Providence*. And all these different Ingredients of the *Air* are digested and attenuated by the Heat of the Sun, and they are constantly stirr'd and agitated by Winds, which mix the *Air* of different Regions together. There are likewise Fermentations in the *Air*, which are succeeded by violent Motions and Explosions in Thunder and Lightning; by which Means the redundant sulphureous Steams, and other pernicious Particles are destroyed and consumed in those Storms.

The particular Causes of Thunder and Lightning seem to be nothing else than the Sun exhaling moist Particles into the *Air*, these condense and gather into Clouds, and when these inclose a Quantity of sulphureous, nitrous and bituminous Exhalations, and likewise Salts of various Sorts, *Acids* and *Alkalies*, extracted both from the *Earth* and *Ocean*, which being violently agitated by the Opposition of Heat and Cold, and the Motion of the *Air*, operating upon those sulphureous and nitrous Particles, together with a watery Matter, till at last they ferment and are kindled; then the Fire bursts open the Cloud with Explosion in Thunder and Lightning, where the Passage is most easy, and the Cloud not able to make any farther Resistance: Sometimes the Opening is very wide, and stands a small time, with a firey Edge about it; the Cloud is then dash'd with great Violence, the *Air* assisting with its Motion, and the sulphureous Matter

Matter breaks out again in various Sounds: the *first Discharge* being over, presently succeeds a *second*, and this is back'd with a *third*, *fourth*, *fifth*, &c. as long as the Store of combustible Matter holds out to maintain the Fire, till at last the *Equilibrium* of the *Air* is perfectly restored.

The Effects of *Lightning* are wonderful; it being a most subtile and refin'd Matter, will sometimes burn a Person's Cloaths, while his Body remains unhurt; and on the contrary, it will sometimes break a Man's Bones, while his Cloaths and Flesh receive no Harm. In like manner it will sometimes melt or break the Blade of a Sword in the Scabbard, and the Scabbard remain untouch'd. It has drank up Vessels of Water, the Cover being left untouch'd, and no other Token remain'd. Gold, Silver, and Brass, have been melted, and the Bags wherein they were contain'd not burnt, nor even the Seal of Wax defac'd. *Marcia*, Queen of the *Romans*, was Thunder-struck when she was big with Child, which was killed in her Womb, and she receiv'd no Harm.

The Reason of these strange and contrary Effects, *Philosophers* can but conjecture at, imputing it to the different Figure and Quality of the Particles of the * *Lightning*, as

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to

* There is a sort of Stone or Mineral, which is vulgarly called a *Thunder-bolt*, and it is thought, that it falls from the Clouds in a Clap of Thunder, and thereby great Mischief is done many times. But this is a vulgar Error; for the Stone seems to resemble more an *artificial* than a *natural* Production.

to the *Rarity* and Thickness of the Fire ; for the more subtile penetrates more easily, and the thicker with more Difficulty ; whence the latter does more Harm than the former ; and tho' it produces various and wonderful Effects, yet it is of such singular Use to the Inhabitants of the Earth, that they could scarce subsist without it ; for it clears the *Air*, destroys and consumes all the redundant and noxious Steams and Particles that float in it, breaks the Clouds, and sends down Rain upon the Earth.

It is certain, from undoubted Experiments, that the *Air* near the Surface of the Earth is more or less impregnated with all those *Heterogeneous* Particles already mention'd, and a great many more not possible to enumerate. And in truth it cannot be otherwise, by the known Laws of *Nature* ; for by what means soever a Body becomes divided, till some of the Particles become less than the component Particles of *Air*, and by that means become lighter, they will be elevated into the *Air*, until by their * Coalescence, their Gravity be so much encreased, as to sink

on, by the Make and Figure of it ; and being most commonly found where Sepulchers have been, makes the *Learned* incline to think, that they are some Remains of Antiquity, and were formerly of Use in War and Arms, which was customary with the Ancients to bury with their Ashes. See *Rowning's Comp. System*, p 146. Part II. and *Philos. Trans.* No. 313, 316, 319, 331.

* *Coalescence*, is the gathering together and uniting into a sensible Mass, those minute Particles floating in a Fluid, which were not before visible in it.

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sink them again to the Earth. And for the Production of such wonderful Effects, even in the hardest and most solid Bodies, we need have Recourse to no other Cause than the *Rays* of the Sun; for as it has been demonstrated by † Astronomical Observations, that *Light* is not above ten Minutes in passing from the Sun to the Earth, and as the Earth is at least 10,000 of its own Diameters distant from the Sun; therefore it must run 1000 of these Diameters in a Minute, which is above 100,000 Miles in a Second. So that if a Bullet, moving with the same Velocity with which it leaves the Muzzle of a Cannon, requires 25 Years to pass from the Earth to the Sun, as *Huygens* ‡ has computed it, then the Velocity of *Light*, to that of a Cannon-Ball, will be as 25 Years to 10 Minutes; therefore we may expect proportionable Effects from such *Particles*, notwithstanding their exceeding Smallness. And we may guess at the Effects of the *Rays* of *Light* separately, by what we can observe when collected in the *Focus* of a burning Glass; for no Body, tho' ever so hard and compact, is able to resist their Force: even Gold, which is unalterable by any artificial Fire, may be * * vitrified by the concenter'd *Rays* of the Sun,

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† Mr. *Romer*'s Observations on the *Eclipses* of the *Satellites* of *Jupiter*.

‡ *Huygens* in his Treatise upon *Light* and *Gravity*. He was a celebrated Mathematician.

* * Vitrified, made or chang'd into Glass by the Force of Fire.

one Part of it exhaling into the *Air*, as the other is turned into Glass; and that in a few Seconds of Time, according to Mr. *Blundel* and others.

Hence it appears, that the *Rays* of the Sun are not only capable to abrade and file off from the most solid Bodies, such small Particles as will be render'd lighter when separate, than the least compounding Particle of *Air*, but also by the Celerity with which they will be reflected, will thereby be capable to carry into the Air such little Collections of Matter, as are in Fact heavier than the *Air* they mount up in, which, when the Force impressed becomes less than will impel them higher, they must necessarily fall down to the Earth again, which will variously affect human Bodies, both in their Ascent and Descent, according to their different Nature and Properties.



CH A P. II.

Of the Properties of AIR.

THE *Properties* of Air are, *Gravity*, *Elasticity*, *Fluidity*, and *Divisibility*. They are so called, because they constantly remain in the whole Mass and in every part of it.

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The *Gravity* of the *Air* was first discover'd by *Galileus*, by trying to what Height Water might be rais'd by pumping; and when he found it could not be rais'd higher than 33 feet, justly concluded, that it was from the Counter-balance of the Weight of the *Air* that it was rais'd so high.

The * *specifick Gravity* then of *Air*, when the Barometer † stands at 30 Inches, according to Sir *Isaac Newton's* Observations, and Dr. *Halley's*, is to that of Water, about 1 to 800, and to that of Mercury as 1 to 10,800; So that the *Air* we breathe in,

* *Specifick Gravity*, is the appropriate and peculiar *Gravity* or Weight which any Species of natural Bodies have, and by which they are plainly distinguishable from all other Bodies of different Kinds, when compared with them: And it is not improperly called *relative Gravity*, to distinguish it from *absolute Gravity*, which encreases according to the Proportion of the Bulk or Bigness of the Body weigh'd. Thus, if a Body weighs a Pound, one as big again will weigh two Pounds; and let the Bodies be of what Nature or Degree of *Specifick Gravity* soever, a Pound of one will be as much as a Pound of the other *absolutely* consider'd. Thus a Pound of Feathers is as heavy as a Pound of *Lead*; but if we consider *Lead* and Feathers *relatively*, the *specifick Gravity* of the former will be much greater than the later; or *Lead*, Bulk for Bulk, will be much heavier than *Feathers*, and *Gold* heavier than *Lead*.

† *Barometer* is a Glass Tube or Instrument to measure the Weight of the *Atmosphere* by; it is about three Feet in Length, and $\frac{1}{16}$ or $\frac{2}{10}$ of an Inch bore, seal'd up at one End, and at the other End it is fill'd quite full of Quicksilver; and thus immerf'd in a small Vessel of Quicksilver, that will sink down in the Tube, or run out into the Vessel, till it remains in the Tube between 28 and 31 Inches perpendicular height; and this Column of Mercury in the Tube, is equal in Weight to a Column of *Air* of the same Basis, and of the Height of the *Atmosphere*, and consequently is suspended by it; which therefore by its rising higher or falling lower, shews the proportionally greater or lesser Weight or Pressure of the *Atmosphere*.

in, takes up 10,800 times the Space that the like Quantity of Mercury would. And the Honourable Mr. *Boyle* proves by Experiments †, that the *Air* without any adventitious Heat, may, by the Force of its own *Spring*, possess 13,000 times the Space it does when pressed by the incumbent *Atmosphere*; and therefore may possess a Space one hundred forty-five Millions, and six hundred thousand times greater than the same Weight of Mercury; and that by the Addition of Heat, it may be forced to fill a Space much larger. And if we consider that the *Air* we breathe in, may be compressed into 40 times less Space than that which it now fills; therefore *Air* may possess a Space 520,000 times greater at one time than another.

The *Gravity* of *Air* counterpoises a Column of Mercury from $27\frac{1}{2}$ Inches to $30\frac{1}{2}$; the *Gravity* of the *Atmosphere* varying sometimes $\frac{1}{10}$, which are its utmost Limits, so that the *specifick Gravity* of the *Air* cannot be exactly determined. And the Account that Dr. *Halley* gives of the Causes of the Variation of the Gravity of the *Air*, seems very clear and conclusive; for they must either proceed from the *Air*'s being more or less charged with Quantities of ponderous Ingredients in one Time and Place, which, as has been said in the former Chapter, are plentifully exhaled into

† *Boyle's* Tracts about the wonderful Rarefaction of the *Air*.

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into it, or by its being accumulated more in one Place than in another by Currents of Winds; thus contrary Currents of *Air* coming to the same Place, must accumulate the *Air* in that Place, and consequently raise the Mercury in the *Barometer*; but two Currents of *Air* from the same Place, must sink the *Air* in that Place, and consequently the Mercury in the *Barometer*.

This is very possible in Liquids, and happens even in the Motion of the Tides; for if there was a perfect Calm always, the *Equilibrium* could only be charged by the greater or smaller Quantity of ponderous Ingredients in the *Air*; in Confirmation of which it is discovered, that where the Winds are not variable, as near the *Line*, the Alterations of the *Barometer* are very small: And these Variations of the *Air's* Weight cannot proceed from letting its ponderous Ingredients fall, as in great and heavy Showers: Tho' it is certain, that a heavy Body falling through a Fluid, during its Descent, does not press upon it, but by the Resistance which the Fluid gives to its Motion in Descent; but the Decrease of the *Atmosphere's* Weight during the fall of Rain, Snow, or Hail, is not proportionable to this Cause, therefore cannot be accounted for from it.

As the incumbent *Atmosphere* is fluid and heavy, it presses equally upon the Surface of a human Body, with a Weight equal to a Column of Mercury, whose Basis is

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equal

equal to the Surface of a Human Body ; and Altitude, that of the *Barometer*, as in a middle-siz'd Man, with a Weight of 32,000 Pounds ; for as it is possible for the *Air* to vary $\frac{1}{10}$ in its Weight, so that such a human Body must sustain a Weight of 3,200 Pounds Weight more at one Time than at another ; and if the Mercury varies only one Inch in Height, there will be a Difference of about 1000 Pounds Weight: Such Alterations would affect both the Solids and Fluids of human Bodies very much, were it not that the Ballance between the *Air* within and that without the Body is quickly restor'd, by the free Communication that is between them ; so that these Changes are suffered without any sensible Inconvenience to healthful People.

This proves the ready Admission of the *Air* into the Vessels of human Bodies, and the Egress of aërial Particles from within the Body, in each Case of the Variation of the Weight of the external *Air*, from less to more, or from more to less ; for if this Balance between the external *Air*, and that within the Body was not kept, the Fibres and Fluids being elastick, in case of an Increase of the Weight of the external *Air*, both the Fluids and Solids would be too much compress'd ; and in case of a Decrease of this Weight, they would be dilated with a painful Sensation, and endanger the Life of the Individual ; for the Fall of the Mercury
in

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in the *Barometer* is the same with the Ex-
suction of so much Air in the Air-pump;
and the Rise of the Mercury the contrary.

This Alteration happens in Vegetables and
in *fermenting Liquors*, as well as in Animals;
and how these considerable Changes are made
by Heat, Cold, or great Winds in *fermenting
Liquors*, is an Observation of every one con-
versant with them; for all these Changes
are brought about by altering either the
Weight or Spring of the circumambient
Air: It is for this Reason likewise, that se-
veral People, by their Akins and Pains, can
foretell any considerable Change of the Wea-
ther; for their Blood being more rarefied at
the approach of wet Weather, or high
Winds, will more forcibly press upon the
sensible Membranes of the Body, so as to
cause Pains that they were free from before:
And this the rather happens, because the
Blood hereby becomes not in the least the
more fluid; for *Froth*, which is only Water
blown into Bubbles by *Air*, is less fluid than
Water itself; and the *Globules* of the Blood be-
ing blown larger by the contained Air, when
the Pressure of the external *Air* is removed,
the Blood then is rendered less fluid, and
will pass through the Capillaries with great
Difficulty.

A Fluid must have its Parts small, smooth,
spherical, or approaching thereunto, and of
equal Density, if the Fluid be homogeneous*,

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accord-

* *Homogeneous* is such Particles as are pure, entire, un-
mixed, and altogether like one another.

according to *Borelli* †: and it is not necessary that the Parts of a Fluid should be in Motion, because it is neither apparent that the Parts of all Fluids are so, nor that the Parts of some solid Bodies are not so; therefore, the Blood in this rarefied State is rather less, than more fluid, in which Condition it will remain, whenever the Gravity of the Air is lessen'd, or its Spring weakened, by any Cause whatever.

There is no Liquor that can be blown up into Bubbles, but what is somewhat viscid, and the more tenacious the Parts of any Liquids are, the fitter it is for this Use; for the Bubbles will be both larger and more lasting; for Example, a Mixture of Soap and Water may be blown into *Spheres* or Bubbles above six Inches in Diameter; and human Blood consists of Parts like what is in such a Mixture; for there are watry, oily, and saline Particles in the Blood, as is evident to our Senses: And that the Blood is blown into such little *Spherulæ* beyond dispute, is what may be observed with a *Microscope* in the Tail of a Fish; for the *Globules* of Blood being too large to pass through the smallest *Arteries*, they change their *spherical* * Figure to a *spheroidal* † one; and when they come into a wider Channel, they recover their former Figure again. Now as it is the Property

† *Borelli* de motibus à gravitate factis, Præpos. p. 142.

* *Spherical*, round like a Ball.

† *Spheroidal*, an oblong Sphere or Ball.

Property of an *Elastick* Body alone, that when its Figure is changed, to recover it again; and nothing being *Elastick* but *Air*, or at least, what contains *Air* in it; it is a plain Reason that the *Globules* of the Blood must contain *Air* in them.

From what has been said, it appears, that whenever the Blood is too viscid, so that the Force of *Cohesion* be not greater than that by which the *Air* contained in the Blood endeavours to expand itself, in such a Case the Person will be more sensibly affected by the Alteration of Weather; from hence better Indications may be taken both for the Cure and Prevention of those Diseases that proceed from a Viscidity in the Blood, than from any other Source whatever.

Human Species can live in *Air* of very different *Gravity*; for the *Air* in the same Place may differ $\frac{1}{10}$ in Weight, the Variation of the Mercury in the *Barometer* being so much; but what is still more extraordinary, human Creatures can live in *Airs*, where the Difference of the Weight is double; for Example, in the Bottom of deep Mines, where the Mercury stands in the Barometer at 32 Inches, and at the Top of the highest Mountains, supposing 'em to be 3 Miles high, the Mercury then must stand at a little above sixteen Inches.

Notwithstanding human Creatures can sustain such a Difference of Weight or Pressure of *Air*, as (in the common Variation of Gra-

vity in the same Place) makes the Difference of Pressure upon a Person of a middle Size 3600 Pounds Weight, and in the Difference of Height in the Bottoms of Mines, and at the Tops of the highest Mountains the Difference of 18000 Weight; which Difference of Pressure or Weight must produce great Alterations in the bending or stretching of the Fibres, and in dilating the Fluids of a Human Body: For in the case of a greater Weight, the Fibres will be more strongly braced, and the Fluids will be rendered more compact; and, as has been observed already, were there not a free Communication between the outward *Air*, and that within the *Animal Fluids*, these Alterations would be insupportable; for the Animal would be, in such a Case, as in an Air-pump with the Exsuction of half the *Air*; in which Case the Blood would boil up and expand itself to a very great Degree, by having so much of the Pressure of the outward *Air* taken off.

And it seems very reasonable, that in diminishing the Force of the Pressure of the outward Air upon human Bodies, the Fibres thereby will be rendered more unbraced, and consequently must create a Weakness in Muscular Motion; which is the Reason, in a great Measure, that People breathe shorter and with more Difficulty than usual, in going up to the Tops of high Hills and Mountains; for the *Air* in ascending is a great deal lighter than at the Bot-

tom, and by the Diminution of the Pressure of the Air upon the Muscles, less Exercise puts People out of Breath; and likewise the Over-balance of the *Air* contained in the Cavity of the Breast, may help to produce this Effect. But then perhaps it will be said, that the Inhabitants of Mountains are not weaker nor less active than those of lower Situations: In answer to which it must be observed, that the Excess of Coldness of the *Air* on the Tops of Mountains above that of the low Countries, counter-balance the less Weight of the *Air*, and braces the Fibres more strongly: Another Reason is, that such as live in a rarer or lighter Air, as on high Mountains, are accustomed to the Exercise of a greater muscular Strength; as in the Case of Birds performing their Motions in a thinner Fluid, must always use a greater muscular Strength, which, though Nature has accustomed them to the Use of this Element, must strengthen their Fibres; for which Reason tame Birds cannot fly so well as wild ones.

The Alterations of the Pressure of the *Air* in its *Gravity* and *Elasticity*, must produce proportional vibrating Motions, both in the Solids and Fluids of human Bodies; and when these Variations are frequent and extreme, such violent Motions of the Fluids and Solids must cause great Changes in human Bodies; for which there was no Necessity of having recourse to any occult or

hidden Qualities in the *Air*, as a great many have imagined ; and though the *Air* does not much hurt the *Animal Fibres*, by the Softness of its Contact ; yet the alternate bracing and unbracing of the Fibres strongly, may produce these Changes ; and such Alterations are not only producible by the Variations of the Air's *Gravity* and *Elasticity*, but likewise by its Qualities, such as *Heat*, *Cold*, *Moisture* and *Dryness*, which will be the Subject of the next Chapter.

* *Elasticity* is another Property of the *Air*, which is a Force equal to its *Gravity* ; for, as the Honourable *Boyle* and others have proved by Experiments, the smallest Bubble of *Air* by its *Elasticity* or Spring can balance, resist, and equiponderate the whole *Atmosphere* of equal Density, as far as it is exposed thereunto ; for otherwise it would be more compressed than in Fact it is ; and by these two Qualities of *Gravity* and *Elasticity*, and the Alterations of them, the *Air* produces great Effects in living Creatures ; for by these, Respiration is performed, and the *Equilibrium* or Ballance is kept between the outward *Air* and that contain'd in the Vessels of the Body.

True

* *Elasticity* or Springiness, which most Bodies have more or less, is a Power in a Body to return to its first Place and Condition, as a Stick which is forcibly bent ; and the *Air* has it in a very remarkable manner, which being compressed, it endeavours with a very great Force to restore itself to its former State.

True *Air* never loses its *Elasticity*, as Steel, Wood and other Bodies do; yet it exerts it only when it is collected into a Mass; which is confirmed by the *Air-Gun*; for *Mons. De Roberval* of the Royal Academy of Sciences, having let his *Air-Gun* remain charged for the Space of 16 Years, found on discharging it, that the Air's Elastick Force was not at all abated, but produced the same Effect as at first *. By this Elastick Force the *Air* insinuates itself into the Spaces of Liquors not sufficiently filled with it already; there it remains divided in its minutest Particles, and as it were in a fixed State, till it is expanded by Heat, or the incumbent Pressure is taken off, and then it is collected into greater Masses, and exerts its Elasticity in Proportion to the Diminution of the incumbent Pressure.

The *Elasticity* of the *Air* has been sufficiently demonstrated by various Experiments of the Air-pump, and otherwise: One very plain is this; an empty Bladder, the Neck of which being tied round fast, that no Air could either get in or out, and being put into the Receiver of an Air-pump, and the external *Air* therein exhausted, the small matter of inclosed *Air* in the Bladder, will, by its own proper Spring or *Elasticity*, gradually expand itself, and at last will so extend the Bladder as to burst it: Thus also the *Air* compressed in a *Wind-Gun*, will, by its *Elastick*

* Hist de l'Academ. Roy. 1695. p. 368.

tick Force (being discharged) drive a Ball through a Board at several Yards Distance, in the same manner as with Gun-powder.

The Solids and Fluids of Animals contain more *Air* in them in Proportion, than any other Substances: and Animal Solids contain more *Air* than Fluids; and they contain a greater Proportion of Air than any other watery Fluid: For example, Blood contains $\frac{1}{27}$ Part of its Weight in *Air*, and 33 times its Bulk; whereas 54 Inches of Well-water yield only 1 Inch of *Air*; but *Spaw* and *Pyrmont Waters* yield double the Quantity of *Air*, to that of common Water; and therefore the Activity of *Steel* and *Mineral Waters* is owing to some *aërial* Particles in them; for when these are evaporated, the Waters become insipid, and without any Virtue, by the Quantity of *Air* lost, which the Blood and other Fluids of Animals contain, as has been often demonstrated by Experiments of the Air-pump; for they will expand themselves in an exhausted Receiver to a great Degree, in the same Manner as in the Experiment of the Bladder just now mention'd. Hence the Alteration of the Weight and Spring, or elastick Force of the *Air*, which dilates and expands proportionably the Liquors, with which the external Air communicates, must produce sensible Effects in animal Fluids; for as *Air* is a principal Instrument in the *Animal Oeconomy*, and consequently a principal Ingredient in the Composition of all animal

animal Substances, it must in a particular manner affect animal Bodies, and by its Changes differently influence all their Operations.

Fluidity is a Property of Air, which cannot be destroy'd or congealed like Water or other Fluids, by any Power of Art or Nature hitherto known: and this Property of Fluids arises from the exceeding Tenuity or Smallness of the constituent Particles of such Bodies, and their Disposition to Motion, from the Sphericity or Roundness, and Lubricity or smooth Slipperiness of their Figures, whereby they can easily slide over one another's Surfaces all manner of Ways, and can touch but in few Points; so that Particles thus modified, must always produce a fluid Body or Substance, as *Water*, *Fire*, &c. No Coagulation, Fermentation, or Condensation of any Mixtures where *Air* resides, have ever destroy'd its *Fluidity*; for it preserves it in Cold 44 Degrees greater than any natural Cold, which *Property* is absolutely necessary to an Element, in which both Animals and Vegetables live and grow.

As Water is a Fluid much denser or thicker than *Air*, it supports and keeps together the Bodies of larger Animals than *Air* can do. The *Air* is pellucid or transparent to such a Degree as not to be discernible even by the best *Microscopes*, by reason of the great Porosity thereof; for the Pores and Interstices of the *Air* being so very great and large, it not only admits the Light in right Lines, but in
such

such great plentiful Rays, that the Brightness and universal Lustre thereof, not only renders the *Air diaphanous* or transparent, but entirely hinders the *Opacity* or Darkness of the very small Particles of *Air* from being at all seen; and the whole Body of the *Air* must consequently be invisible. But notwithstanding the Minuteness of the Particles of *Air*, many thicker Fluids will pass where it cannot; for Oil, Water, and Liquids will enter thro' Leather, which will exclude *Air*.

That *Air* is a Fluid in constant Motion, may be easily perceiv'd in that Part of a Room illuminated by the Rays of the Sun, entering at a small Hole or Crevice, wherein the visible and floating *Corpuscles* or *Atoms* are in continual Motion; likewise a constant undulatory Motion in the *Air* may be seen by the help of a *Telescope*; and these Undulations or Wavings of the *Air* to and fro, affect small and *tender* Bodies, but not so much as to alter their Figure.

The Difference between *Fluidity* and *Liquidity* is, that the former is a general Name for all Bodies whose Parts yield to the smallest Force or Impression; and thus a Quantity of Sand as well as Water, is called a Fluid: But what is properly called a *Liquid* or *Liquor*, is only that Kind or Species of Fluids which cleaves to the Touch, or sticks to the Finger, &c. or, as may be said, wets it, as Water, or any kind of Juices do: And the Reason of this Difference is owing
to

to the exceeding Smallness of the Particles of Liquids above those of fluid Bodies; and also to their Ponderosity or Weight: for by these means, the Particles of Liquids enter the Pores of the Body which touches them, and by their Gravity or Weight, cohere or stick to, and abide therein, and cause Wetness.

Air is compressible as well as dilatable; for it can be compressed into a less Compass, and smaller Volume, like a Fleece or Lock of Wool, either by its own Weight, or by any other Force; which Weight or Force being remov'd, it immediately recovers its former Bulk and Dimensions again by its Spring. Heat will encrease the Force of the *Elasticity* of the Air to a prodigious Degree, according to the Experiments of Mr. Boyle, as has been observ'd in the Beginning of this Chapter. To prove which by an easy Experiment, take a Bladder entirely empty as you think, and tie the Neck of it very well with a Packthread, and lay it before the Fire, the Heat will presently so dilate and rarefy the little *Air* inclosed, as to make it extend the Bladder to its utmost Stretch, and if continued, will break through it with a Report like that of a Pistol. That *Air* also may be compressed by Art, so as to take up but $\frac{1}{10}$ Part of the Space it possessed before, has been prov'd by Numbers of Experiments made by Boyle and others; for farther Proof and Satisfaction thereof, see Sir Isaac Newton's Optics, p. 342.

Divisi-

Divisibility is a Property of Air, by which living Creatures move in it without much Resistance; for it is always divisible by the smallest Force imaginable. *Fishes* and *Birds* move thro' their respective Element after the same manner; and *Fishes* may be called the *Birds* of the Water; they pass thro' an Element which is 800 times thicker than Air, as has been observ'd in p. 71; for which Reason *Fishes* must employ a Force proportional to the greater Resistance of the Fluid. On the other Hand, a great deal of the Force of *Birds* is employ'd to support themselves in a much thinner Fluid; but the Bodies of *Fishes* are poised or equilibrated with the Water in which they swim. However *Air* has some Degree of *Tenacity* or Adhesion, by which its Parts attract one another, as is manifest by the round Figure of Water-Bubbles, which attract and run into one another; and at the same Time the Particles of *Air*, by their *Elasticity*, have a Power in other Circumstances, of flying off from one another, which two Properties are consistent, as may be seen in Light.

The Resistance of *Air* is very considerable in Bodies swiftly moving thro' it, or by its swift Motion against Bodies. In the first Case, the Resistance increases in the duplicate Proportion of the Swiftness of the moving Body; that is, the Resistance is a hundred times greater when the Velocity is but ten times; so that for this Reason, if light Bodies are moved with great Swiftness, the
Air's

Air's Resistance will throw them back in another Direction.

Air moving with Rapidity, as in violent Storms or Winds, produces very sensible Effects in human Bodies, to which if we add the Motion of the Person moving opposite, then the Pressure will be very considerable; hence Walking or Riding against great Winds is a great and laborious Exercise, the Effects of which are a Redness and Inflammation of all the Parts exposed to the *Air*, being like the Effects produc'd by a soft Press or Stripes, Heat and Drowsiness.



C H A P. III.

Of the Qualities of AIR.

THE Qualities of *Air* are *Heat*, *Cold*, *Dryness*, and *Moisture*; they are called Qualities of the *Air*, because they are changeable, and do not constantly reside in the whole Mass, nor in the Parts thereof.

By these variable Qualities of *Heat*, *Cold*, *Dryness*, and *Moisture*, the *Air* must of Necessity produce various Alterations in human Bodies. For if we consider, that human Blood is a Fluid continually warm, and inclosed in a Composition of thin and flexible *Tubes*, to which the outward *Air* has Admittance

tance or Entrance by the innumerable Passages of the Pores of the Body : Again, if we consider this Machine, with its inclosed Fluids steaming and reaking hot thro' numberless Pores, and often changing Situation, sometimes within, sometimes without Doors, and exposed to the *hot, cold, dry, or moist Air*, and all the various Alterations that occur in that Element ; the Changes which must happen to a human Body in such Circumstances, must be very considerable, and far greater than we generally suppose or imagine ; for besides the real Influence of the circumambient *Air*, human Bodies are affected by these Changes with a painful or pleasant Sensation, which they have not always in their Power either to escape or possess.

Heat is a Quality relative to our Senses excited in the Mind, by a great and swift Agitation of Particles of the hot Body exerting its Action or Influence on us ; so that *Heat* in us is only the Idea thereof ; and in the hot Body, Activity and Motion, and nothing else : for no Heat is sensible, unless the Particles of the Body which act upon us, be greater than the Motion of the Organ or Part of the Body acted upon. But when the Motion of the Particles of the Body acting, is less than that of our Organs of feeling, then it causes in us the Sensation or Idea of Cold, which is only a Privation or less Degree of Heat or Motion.

The

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The Spirit of Wine in *Thermometers* * or Weather-Glasses, is affected with the least Alterations of *Heat* and *Cold*; and therefore is the best Guide to know the Variations of the Weather, tho' the Degrees marked in the *Tubes* of them do not exactly measure their Quantity. The natural Heat of a grown Person is 92, and of Children 94 Degrees; but no Animal can live long in *Air* of 90 Degrees, or near the natural Heat of the Body.

The Rarity or Thinness of the *Air* renders it more sensible of the Alterations of *Heat* and *Cold*, than any other Fluid whatever; for the least Increase of *Heat* dilates it, but a Diminution thereof contracts it immediately. The Degrees of Expansion of the *Air* cannot be determin'd; for the greatest Heat will not totally expel it, but by this continual Expansion and Contraction, by different Degrees of *Heat*, it is kept in constant Motion.

Heat, but not so great as to destroy animal Solids, relaxes the Fibres, and rarifies the Humours; whence proceeds the Sensation of Faintness and Weakness, and whence languid and hysteric People suffer in a hot Day; for the Fluids are dilated, as is manifest to both the Sight and Touch, and the external

G Parts

* *Thermometer* or Weather-Glass, is a Glass Tube filled with Spirit of Wine of a red Tincture: It is an Instrument of great Use in the Hands of skilful Persons, in discovering the Degrees of Heat and Cold in Air, animal and vegetable Bodies, Liquids, Hot-Beds, &c.

Parts swell, and are plumper in hot than in cold Weather.

Excessive hot *Air* is capable to reduce animal Substances to a State of Putrefaction, and therefore very hurtful to the Lungs in particular; for the Blood, by its Circulation thro' the Lungs, is heated to a degree so as to render it spumous; and the Surface of the Vesicles of the Lungs being exposed to the external *Air*, which has a free Communication to it; so that Refrigeration by cool Air is one, tho' not the principal Use of Air in Respiration: but when the outward Air is many Degrees hotter than the Substance of the Lungs, it must necessarily destroy and putrify the Solids and Fluids: Which is confirm'd by an Experiment of the learned Dr. *Boerhaave*, who relates, that he put a Sparrow into a Sugar-Baker's drying Stove, where the *Air* was heated 54 Degrees more than the natural Heat of Human Blood, which died in two Minutes; a Dog being put in began to pant very much for Breath in seven Minutes, and in a Quarter of an Hour express'd very great Uneasiness; soon after he grew very faint, and expired in 28 Minutes; he drivell'd a great Quantity of red Foam most part of the Time, which stunk so intolerably that a labouring Man that went near it was almost struck down instantly with the Stench. Dr. *Boerhaave* observes in this Experiment the direful Effects of this Degree of Heat, how soon it occasion'd a most acute Disease, with violent and mortal Symptoms;

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Symptoms; and how suddenly the Humours were changed and thoroughly putrified in 28 Minutes: He moreover observes, that these were not the mere Effects of the Heat of the Stove; for if the Flesh of a dead Animal had been hung up there, it would have dried, and not turn to a pestilential Corruption; which must arise from the Friction caused by the Circulation of the Blood through the Lungs, and being not in the least refrigerated, as in this Case.

By the Degrees of the Heat of the Air acting upon Human Bodies, the Quantity of * *Perspiration* both sensible and insensible is regulated; for, by the Journals of the industri-

ous

* *Perspiration* is twofold, *sensible* and *insensible*; by the first is meant what we discharge by Spittle, Sweat, Urine and Stool; by the latter is understood what is imperceptibly exhaled or expell'd through the whole external Skin of the Body, as also from that of the Mouth, Nose, Jaws, Larynx, Lungs, Gullet, Stomach, Intestines, Bladder and Womb; so that the Quantity of it exceeds that of all other *Excretions* join'd together: for when the Body is strong and healthy, and after moderate living, especially in a warm Climate, such as *Italy*, that which is discharged insensibly by the Pores of the external Skin, Mouth, Nostrils, &c. is five Eighths of what is taken into the Body in Meat and Drink. It will not appear incredible, that animated Bodies should thus perspire, when we find by Mr. *Boyle's* Experiments, that he has observ'd the like even in the most solid and inanimate Substances. Besides, we see the *Air*, when return'd in Respiration from the Lungs, brings along with it a Vapour, which in cold Weather condenses into considerable Drops. We likewise find that a Finger, or any other Part of the Body, or our Breath, applied to a Glass, or polish'd Metal, will presently moisten and tarnish it. This perspirable Matter, according to the learned *Boerhaave*, is a Mixture of Phlegm, volatile Salt, and Oil, in certain Proportions; and after a long Course of Circulations in

ous and learned Dr. *James Keil* of *Northampton*, it appears, that the *Perspiration* in *England* scarcely equals all the other Excretions, and that in Summer it is near double to that in Winter ; whereas we find, by the incomparable *Sanctorius's Aphorisms*, that the *Perspiration* in *Italy* the Year round is to all the other Evacuations as five to three, and probably the Proportion may be still greater in hotter Climates ; and yet the same *Author* tells us in Aphorism vii. Sect. I. that the Quantity of insensible *Perspiration* varies according

all the Forms of the Animal Fluids, is deprived of all that can be of farther Use to any Part of the Human Body ; and is secreted by the capillary Arteries, and passes off insensibly and almost invisibly through the Pores of the Skin, and other Parts of the Body. But whenever this *Evacuation* is either diminish'd or obstructed, it is almost an infallible Indication of Diseases, and probably the Cause of them likewise. And Nature has so provided, that if by any external Cause this *Evacuation* is hinder'd in any one Part, it is always increased in another, or otherwise a Distemper will ensue; for which Reason when the Coldness of the *Air*, which more immediately affects the outward Skin, or any thing else lessens the Discharge of *insensible Perspiration* that Way, either the *sensible Evacuations* are increased, as commonly the Urine, or greater Quantities are carried off by Respiration from the Lungs and Parts about the Mouth, as we see in frosty Weather, like Smoak out of the Mouth; or else it is perspir'd into the Cavities of the Stomach and Guts, which afterwards is discharged by breaking of Wind either upwards or downwards: For as long as the Impulse within remains the same, wherever there is the least Resistance, there will be always the greatest Derivation of the *perspirable Matter*: And from hence it is, that we so frequently find, when the Body is more than usually exposed to the external Cold, Gripings, Loosnesses, Colics, and great Uneasinesses in the Bowels, which is nothing else but some Part of the *perspirable Matter*, that ought to have passed the outward Skin, check'd by the Cold, and by an opener Pas-

according to the Differences of *Constitutions*, *Ages*, and *Countries*, *Seasons*, *Distempers*, *Diet*, and the rest of the *Non-naturals*: Which must occasion a great Diversity of *Constitutions* and *Distempers*, according to the different *Climates*; for the serous Part of the Blood is carried off by Sweats or *sensible Perspiration*, in far greater Quantities in hot Countries, than in cold or temperate *Climates*, which must consequently render the *Crassamentum* or fibrous red Cake of the Blood larger; hence we may know the Reason why the Blood of People residing in those hot

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sage within thrown off that Way. *Leeuwenhoek*, by the Help of Glasses, has discover'd the Texture of the Scarf-Skin to be scaly; and that those Scales cover one another in several Lays, more or less, according to the different Thickness of the Scarf-Skin in the several Parts of the Body; and that in the Compass of one cuticular Scale he reckons there may be 500 *Excretory* Channels, and that one Grain of Sand will cover 125000 Orifices; and that from these a most subtile Humour continually transpires in all the Parts of the Body; which was first observ'd by the incomparable *Sanctorius*, to whom alone the Glory and Perfection of this Discovery is entirely owing.

Insensible Perspiration therefore, both as to the Matter and Quantity of it, is so absolutely necessary to the Health of a human Body, that a Distemper can neither be removed, nor Health preserv'd, unless it be rightly digested and discharg'd: For which Reason it ought to be of the utmost Concern to a *Physician* not only thoroughly to acquaint himself with the Nature of this Evacuation, but likewise thoroughly to know by what Means it is to be promoted or lessen'd, according to the several Exigencies of his Patients, either for the Preservation or Recovery of their Health: For according to the last mention'd Author, in Aphorism ii. Sect. I. 'If a Physician who has the Care of another's Health is acquainted only with the sensible Supplies and Evacuations, and knows nothing of the Waste that is daily made by insensible Perspiration, he will only deceive his Patient, and never cure him unless by Accident.'

Countries is commonly thick and black when drawn from any Part of a human Body, as Experience teaches.

Air is not cooled by the Motion of Winds, but by the *Air* of cooler Regions that they bring along with them; for the *Thermometer* will not change by Winds or by the strongest Blasts of Bellows, unless it is blown through *Ice* or some other Body colder than *Air*, according to Mr. *Boyle's* Experiments, but then such a Blast will sink it considerably. Winds cool animal Bodies by driving away the hot Steams that surround them; for if we suppose that the Heat of a human Body is 90 Degrees, and the Heat of the *Air* 48, by blowing off the hot Steam, then the animal Body will be surrounded with an *Atmosphere* of 48 Degrees, and consequently near the one half of its natural Heat taken off in a Second of Time. Therefore, if immediately after Exercise we rest in a cold *Air*, we run a great Hazard of falling into great Diseases, of which there has been frequently woeful Instances, especially such Distempers as affect the Lungs, as *Inflammations*, *Asthmas*, *Pleurisies* and *Catarrhs*; for this Change of their *Atmosphere* happening every Second of Time, is much the same thing as putting on a cold Suit of Cloaths every such Time.

Therefore, as human Bodies may be cool'd by *Air* cooler than their own Temperament, so there may be great Use made of temperating feyerish Heat by the outward *Air*, pro-

vided it be done with Caution ; which is very well known by Experience, as in inflammatory Diseases, such as the Small-Pox, Measles, &c. scarcely can any Liquor taken inwardly cool human Blood sooner than cool Air ; for, by its Admission into the Pores of the Skin, and its being in immediate Contact with the Vesicles upon the Surface of the Lungs, it cools the Blood in a very little Time : So that great Mischief frequently happens by keeping the *Air* of the Rooms of People in Fevers too hot, by depriving them, in the first Place, of the Benefit of being refresh'd by it, and in the next, by the bad Effects of animal Steams pent up in the Room, which spoil the *Air* and destroy its *Elasticity* or Spring. Therefore it is the Opinion of the most celebrated *Physicians*, that renewing and cooling the *Air* in a Patient's Room, by giving it a free Admission, in opening the Door sometimes, the Bed-Curtains, and in some Cases the Windows, or letting it in by Tubes or Pipes, in order to change the hot *Atmosphere* about the Patient, (provided the Intention of keeping up a due Quantity of Perspiration is not disappointed) and in general the right Use and Management of the *Air*, is one of the principal Parts of a *Regimen* in all inflammatory Diseases ; but, through the Ignorance and scrupulous Care of Nurses, in so material a Point as this, the Distemper is frequently increas'd, lengthen'd, and at last proves fatal ; and this Mistake proves far more dangerous to strong,

vigorous, compact, and heavy Constitutions, than to lax ones; according to this Axiom, *Heat is detain'd in proportion to the Density of Bodies.*

Cold is a Privation or Diminution of so many Degrees of *Heat*, as I have observ'd already in Page 96, and it produces a proportionable Abatement of the Effects of *Heat*; so that, from what has been said already concerning hot *Air*, the Effects of cold *Air* may be inferr'd. Cold *Air*, according to *Philosophers* and *Naturalists*, is the immediate Cause of freezing; it first begins in the *Air*, by congealing the watery Particles in it; but the Effects of this Cold sometimes do not reach so far as to freeze the Water on the Surface of the Earth; as in Summer Hail and Icy Showers.

Cold condenses the *Air* in proportion to the Degrees of it; and likewise contracts *animal Fibres* and *Fluids*, which are denser; for as Cold braces the *Fibres*, not only by its condensing Quality, but likewise by congealing the Moisture of the *Air* which relaxes; so for this Reason Animals in cold Weather are of less Dimensions than in hot Weather. Extreme Cold produces at first a pricking Sensation in human Bodies, and afterwards a glowing Heat, or a small Degree of Inflammation in all the Parts of the Body exposed to it; and by bracing the *Fibres* more strongly, thickening the *Fluids*, and stimulating, it produces Strength and Activity in human Bodies,
of

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of which healthy People are very sensible in
clear and frosty Weather.

Now, if the Effects of cold Air be so considerable upon the Surface of the Body, why may not they be much more so upon the Lungs, wherein the Blood is much hotter, and the Membranes or Coats very thin, and in immediate Contact with the external Air? But were it not that the warm *Air* is not altogether expell'd out of the Lungs in *Expiration*, the Contact of the cold Air would be insupportable to human Creatures; and the Effects of cold *Air* in producing Inflammations of the Lungs in all Nations is common, especially upon the blowing of cold north-easterly Winds in *Europe*, or north-westerly Winds in *America*.

Cold suppresses some of the grosser Parts of the *perspirable Matter*, by which Means a great many *Salts*, that would be exhaled in warm Weather, are detain'd, by contracting the Pores of the Skin, and cooling the Blood too much in the Vessels that are exposed to the *Air*; as also by a *Stimulus* the cold *Air* vellicates and inflames these Vessels, as has been observ'd already, and at the same time producing *Scurvies* with dismal *Symptoms*, being a Distemper of cold Climates; the fatal Extremities of which we may see in Captain *James's* Journals, in *Gerat de Veer's* a *Hollander*, and in Captain *Middleton's*, and in those of many others, who have winter'd in *Greenland*, and other cold Countries; for the Cold that froze their spirituous

I

Liquors

Liquors produc'd almost the same Effect in their Blood, by reducing the *animal Substances* of some to a gangrenous State, with Mortifications of their Limbs and Gums, being oblig'd to cut off the *putrid* or rotten Flesh; a total Incapacity of chewing, not capable to move themselves, and intolerable Pains in many Parts of the Body, with black and blue Spots and Blisters on their Skins; and by suppressing *Perspiration*, and retarding the Circulation of the Blood, others were seiz'd with *Giddiness*, *Sleepiness*, *Pains* in the *Bowels*, *Looseness*, *Bloody-Fluxes*, *Iliack Passions*, and a Mortification in the Guts; but seldom any Loss of Appetite, which is very surprizing: All such dismal Symptoms could not be attributed to the Effects of Salt Provisions, in as much as they frequently had fresh both animal and vegetable.

Extreme Cold or extreme Heat will destroy animal Substances, or reduce them to a gangrenous State, but with this Difference, that a Degree of Cold that will produce a Mortification in living Bodies, will preserve those that are dead from Putrefaction; and in order to produce such a Change, there must be a Concurrence of Heat and Motion in the animal Fluids with the *Stimulus* of the Cold to produce the Change; for which Reason, Blisters cannot be rais'd on dead Bodies by the strongest blistering Plaisters imaginable.

Moisture is a Quality of *Air* which affects animal Bodies in relaxing and lengthening
their

their Fibres; for it has been often demonstrated by Experiments, that the single *Fibres* both of Animals and Vegetables are lengthen'd by moist *Air*, and that it relaxes is likewise evident from daily Experience upon *Leather*, *Vellum*, *Paper*, and a *Drum*. By cold Bathing there is a momentary Contraction of the Fibres of the Body effected by the Coldness of the Water only, and the Sensation of which works as a Stimulus in human Bodies; but the Water in its own Nature would relax, and continually does so, if we remain too long in it; which is the Reason that People using the Cold Bath are order'd not to stay in above half a Minute, or a Minute: and warm Water relaxes a great deal sooner than cold, and Swimming fatigues and dispirits more by relaxing the Fibres than Exercise.

Air, by the Assistance of Moisture, will sooner insinuate itself into the Pores of Bodies than otherwise; for a dry Bladder will sooner burst than let *Air* pass thro' it, but when it is moisten'd it easily passes. Yet Moisture diminishes the *Elasticity* of *Air*, for in rainy Weather it is less Elastic; so that Moisture relaxes human Fibres, by weakening the Spring of the *Air*; but dry *Air* will lessen those Effects, or produce their Contraries, such as bracing and contracting the animal Fibres, which were before both relax'd and lengthen'd by too much Moisture. And a great many Symptoms which People are

are sensible of in moist or rainy Weather, are chiefly owing to the Relaxation of the Fibres by moist *Air*, by which means they lose some Degree of their *elastic Force* for circulating the Fluids; hence arise those Aches and Pains which are felt in the Parts of the Body, where the Circulation of the Fluids is not perfect, as in *Cicatrices*, or Scars of Wounds, old Sprains, Dislocations, or bruised Parts. Likewise a moist and foggy *Air*, especially where the Country is low and marshy, will so weaken the Tone of the Vessels, as to hinder a proper Discharge of what ought to be carried off by *insensible Perspiration*, according to *Sanctorius* *; and particularly weaken those of the Lungs, by which means the Viscidity of the Blood will be increased; hence arise *Coughs*, *Catarrhs*, *Consumptions*, *Asthmas*, *Pleurisies*, *Head-aches*, *Dulness*, and *Stupidity*, *Epilepsies*, *Hoarseness*, *cutaneous Eruptions*, *pale and languid Complexions*; and such People are also subject to scorbutic Habits, weak Appetites, Fevers of different kinds, *Diarrhæas*, *Dysenteries*, and *Dropsies*. †

When the *Air* is overcharg'd with Vapours near the Surface of the Earth, and
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* Med. Stat. Sect. 2. Aphor. 8.

† Hippoc. Aph. 16. lib. 3. & lib. de Aëre, Aqua & Locis; in which last Book *Hippocrates* tells us, that the *Phasians*, who inhabited a low and marshy Country, were frequently subject to the above-mention'd Distempers, and which is commonly, and almost always the Fate of all such Situations, as both History and Experience teach.

when those Vapours are more in a falling than in an ascending State, it is then properly called *moist Air*; tho' the Body of the *Air* may contain more Water in it at other times; but then the Water and *Air* are more intimately mix'd, and the Vapours are higher, and a less Quantity of them in contact with our Bodies; so that *Air* in such a State may be justly called *dry*; and sometimes the *Air* may be said to be in a State of exhaling and imbibing, and at other times in a State of precipitating its Waters and other Contents.

Dryness is another Quality of *Air*, by which it produces Effects contrary to those of moist *Air*: and as dry *Air* exhales and imbibes volatile Spirits, and Oils of animal Bodies, so it does consequently influence *Perspiration*. But great Dryness is capable of changing the very Texture, as well as the Situation of the Pores of the Skin of human Bodies; and either extreme Dryness, or extreme Moisture have very often proved dangerous, if not fatal to human Bodies; and tho' our Bodies are not capable of bearing Excesses of any kind, yet of the two, extreme Dryness has been found most destructive to animal Bodies.

By the *Properties* and *Qualities* hitherto enumerated and explain'd, *Air* must produce very great Alterations in human Bodies; for it does not only operate by outward Contact, but we likewise imbibe it at all the Pores of the Body, as is evident by what has
been

been said already; otherwise the *Air* could not have a free and constant Admittance into the Body, and consequently the Ballance between the outward *Air*, and that within the Vessels, could not be so quickly restor'd; and it is upon the due Ballance of the *Air* within and without the Body, that the Life of all Animals depends.

The Skins of Animals dry'd exclude *Air*; but those of living Creatures being moist and oily, it will easily pass thro' them; for wherever there are Emissaries, there are also absorbing Vessels: And to prove this Assertion farther, many Bodies a great deal thicker and heavier than *Air*, such as *Mercury*, *Spanish Flies*, and *Garlick*, &c. readily enter the Pores of the Skins of animal Bodies. So that while we perspire, at the same time we absorb part of the outward *Air*; and the Quantity of perspir'd Matter, discover'd by the Method of weighing, is only the Difference between *that* and the *Air* absorb'd; therefore after great Labour and Abstinence, which produces an Emptiness in the Vessels, and consequently a great Diminution of *Perspiration*, it is very probable, that in such a Case, the Quantity of the *Air* absorb'd may exceed that of the perspir'd Matter: which must be true, if *Sanctorius's* and *Dr. Keil's* Journals of Perspiration be faithful and exact; for there is an Instance in the Doctor's Journals, of a Person's growing 18 Ounces heavier by absorbing *Air*. The Doctrine of
absorbing

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absorbing *Air* thro' the Pores of the Skins of living Creatures, was taken for granted both by *Hippocrates*, *Galen*, and their Followers, which has been since confirm'd and demonstrated by that accurate and most ingenious Observer of Nature, Mr. *Hales*, in many Bodies, particularly in Vegetables, by plain and easy Experiments; by which it appears, that *Air* freely enters thro' the Bark, Stem, Leaves, and all the Surface of Vegetables. By absorbing external *Air*, with all its Qualities and Contents, many great Effects must necessarily follow, and many sudden Alterations happen in human Bodies; and nothing can account more clearly for epidemical Distempers seizing People inhabiting the same District of Land, and who have nothing else in common that affects them, except *Air*, which is confirm'd by * *Hippocrates*, † *Sydenham*, and many others.

* *Hippocrates*, Epid. lib. 3. Sect. 3. & lib. de Aëre, Aq. & Locis.

† De Febris intermit. Thucyd. lib. 2. p. 130. 147.

Diod. Sicul. p. 101, 102.

Hallerius libel. de Peste, p. 577.

Hippoc. lib. de Flatibus, p. 297. & lib. 6. de Morb. popular. Sect. 8. p. 1199.



C H A P. IV.

Of the Influence of AIR upon Human Bodies.

THE *Influence* or Power of the Air upon human Bodies is as different as the Diversity of the Weather, Seasons, Climates and Countries; but the true Knowledge of it is very obscure and imperfect, especially in that Part which will be always difficult to find out, that is, the different Qualities of the *Air*, and the manner of their acting upon human Bodies; yet if Journals of Diseases, compar'd with the Weather, had been kept for some Centuries in many Places and Kingdoms, we should at last have come to more than a conjectural Knowledge of this important Matter.

The divine *Hippocrates*, after a Series of many Years indefatigable Practice and just Observations, has left us in his Books of Epidemics, and third Section of Aphorisms, an inestimable Treasure of Golden Rules to go by for this Purpose; and tho' he had neither * *Barometer*, † *Thermometer*, nor ‡ *Hygroscope*

* *Barometer*, See Page 79. Note ‡.

† *Thermometer*, vid. p. 97. Note *.

‡ *Hygroscope* is a useful Instrument to be made several Ways, for measuring the Moisture and Dryness of the *Air*.

groscope, to measure either the Weight; Heat; Cold or Moisture of the *Air* by, yet knew more of the Influence of *Air* on human Bodies, than all his Predecessors and Successors put together; for none of them ever made such just and curious Observations upon *Air*, and its Effects, as he did, which plainly appears in his Works: he judg'd only according to Reason and his Senses, which are surer Guides than the *Thermometer*, in respect to the Effects of Heat and Cold upon our Bodies; for by the *Thermometer*, stagnant Water is of the same Degree of Heat as the ambient *Air*, but if apply'd to our Bodies, we shall feel it much colder; therefore, *Air* abounding with more or less watery Particles, is colder or hotter to our Senses, tho' the *Thermometer* still remains at the same Height.*

This sagacious *Great Man* tells us, that || *Whoever would understand Physic, it is first necessary to understand the Seasons of the Year, and then their Effects on our Bodies; and that* † *we ought to know the Constitutions of the Air, what they are, and in what Times and Regions they mostly appear.* He says likewise, ‡ *That Distempers seldom arise from any other*

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Cause

* According to Lord *Verulam's* Observations, Water seems colder than Air; and the Froth of any Liquor seems warmer than the Liquor itself; and the Powder of any solid Body, warmer than that solid Body, tho' the *Thermometer* still proves the same Degree of Heat in each to be alike. Hist. Nat. & Experiment. de Ventis, cap. de forma Callidi, p. 143.

|| Hippoc. lib. de Aëre, Locis & Aquis, p. 280.

† Hip. lib. 4. p. 1138. de morb. Epidem.

‡ Hip. lib. de Flatibus, p. 297.

Cause than the Air; for either it is too much or too little, or abounds with infectious Filth. He tells us in another Place ||, That the Air is to be consider'd as to its Heat or Cold, Thickness or Thinness, Dryness or Moisture, and their several Changes.

According to his Instructions, we are likewise § to consider the Situation, *Air*, and Water of a City, in order to come at the Knowledge of their popular Diseases, and their Seasons: for Instance, that Cities exposed to the ‡ hot Winds, such as blow between the rising and setting of the Sun in Winter, to which Situation such Winds are peculiar, and at the same time are defended from the Northerly Winds, abound with Water of a saltish Taste, which as it comes from above, must needs be warm in Summer, and cold in Winter; but Cities that are well situated as to the Sun and Winds, and at the same time supply'd with wholesome Water, are free from many Distempers, which those in different Circumstances are subject to, as has been already mention'd: that if the Summer proves dry, the Diseases are of a shorter Duration than in a wet one, in which they prove obstinate, and apt to degenerate into *Suppurations*, Heat and Moisture in the *Air* producing Putrefaction: that

Defluxions,

|| Idem de morb. popular. lib. 6. p. 1199.

§ Hip. lib. de Aëre, Locis & Aquis.

‡ Hippocrates means in this Place a Southerly Situation, and the Winds that blow from thence.

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Defluxions, much Phlegm, and Hoarseness are occasion'd by cold Weather: that Defluxions from the Head, and Disorders of the Belly, from Phlegm distilling downwards, producing Fluxes, were the Effects of the Winter, which made Women subject to Miscarriages, and Children to Convulsions; likewise such as were expos'd to Cold, subject to Inflammations of the Eyes and Lungs.

This *great Man* could foretell the Diseases from the Weather, and says, that Heat coming upon a wet Season will produce serious Defluxions upon the Head and Belly, and acute Fevers. That cool Weather, about the *Dog-Days*, if not succeeded by a temperate *Autumn*, is dangerous for Women and Children, producing *Quartan* Fevers, and from these they fall into Dropsies: if the Winter is mild and rainy, and succeeded by Northerly Winds in the Spring, it will be dangerous for Women that happen to be with Child, producing Abortions, likewise Defluxions upon the Lungs, *Dysenteries* and *Colicks* in the Phlegmatick, and Inflammations in those that are *Bilious*, because of the Heat and Dryness of their Flesh; and that Obstructions after Relaxations produce *Palsies*, and sometimes sudden Death in old People.

A rainy *Summer* and *Autumn* must needs make a sickly Winter; burning Fevers will happen in People above 40 and *Phlegmatic*; in the *Bilious*, *Pleurisies*, and Inflammations of the Lungs: but if the Summer be dry with

Northerly Winds, succeeded by a wet Autumn with Southerly Winds, Head-aches and *paralytick* Diseases are likely to happen in the Winter; likewise *Hoarseness*, *Stuffings* in the Head, *Coughs* and *Consumptions*: but a dry Autumn with Northerly Winds is profitable to *phlegmatic* Constitutions, and extremely hurtful to the *Bilious*, the watery Parts which dilute the Gaul being exhaled.

He says farther, that whoever considers these Things, may know before-hand the greatest Part of what will happen from the Changes of the Seasons, and advises to consider the Constitution of the *Air* in Operations of *Surgery*; excepts against cutting for the Stone in the Solstices *, especially in the Summer Solstice.

The *divine old Man* goes still farther, and says, that the Affair of Generation is influenc'd by the Difference of the Constitutions of the Air, and that such a Variety should thus happen in the Formation or Mixture of the *Semen*, which is not always the same in the same Person, in Summer and Winter, in wet Weather and dry, that it is oftner corrupted in the Formation or Mixture of it, where the Seasons change frequently, than
where

* *Solstice* is the Time when the Sun being come to either of the Tropical Points, is got farthest from the Equator, and seems to be at a stand for some Days before it returns back, which happens twice a Year in the Summer and Winter. The Summer *Solstice* is when the Sun entering the Tropick of Cancer on June 21. makes the longest Day, and the shortest Night.

where they remain pretty near alike. He likewise attributes the different Shapes, Complexions, Tempers of Mankind, and even their different Forms of Government, to the Influence of the Air: that the fertile Countries of *Asia*, upon the account of moderate Heat and Moisture, produce large and handsome Animals; and that the Softness of their Climate disposes them to Mildness and Effeminacy, not enduring Labour or Hardships of any Kind, like the *Greeks*, frequent Changes in the Body, produced by Labour and the Alterations of the Weather exercising both Body and Mind; for which Reason the *Asiatics* are less bold and couragious, they are slavish and subject to Masters, and tho' they are forc'd, yet they are not willing to quit their Ease and Families, or to endanger their Lives for the Power and Wealth of others, in Expeditions from which they are to reap no Advantage to themselves: that on the contrary, the *Greeks* and Northern *Asiatics* were bold, hardy, and full of Courage; and that, being at their own Disposals, willingly underwent Dangers and the greatest Difficulties, because the Reward of the Victory was to be their own.

He says besides, that as the Equality of the Temperature of the Seasons render'd the *Asiatics* indolent and lazy; so the great variety of Heat and Cold, by differently affecting Body and Mind, render'd the *Europeans* couragious and active; Activity, Labour, and

Exercise begetting *Bravery*, and *Bravery* begetting *Laws* to secure Property ; and being govern'd by such, they were enabl'd to reap the Benefit of the Fruits of their Industry, which those that live under Absolute Monarchy are not capable to enjoy : Here this great and wise Man expresses his Dislike to Despotick Government.

The *Phasians* *, says he, are tall, soft, bloated and pale, on account of the excessive Moisture of the *Air* they breathe ; for their Country is marshy, hot, watery, woody, and subject to violent Showers at all Seasons, and such Effects proceed from lax Fibres occasioned by excessive Moisture ; but such as inhabit Mountainous Places, where they are of a large Make, have a variety of Weather, and are bold, fierce and active ; and the Inhabitants of fertile Plains, with stagnating Waters, are the reverse ; for a fat Soil produces dull and heavy Understandings. The Inhabitants of barren and dry Soils, with cold Winters, are passionate, warm in their *Temper*s, positive, proud, and of a quick Understanding.

In one of his Books †, he attributes the Causes of all Diseases, especially of the Peste-
 lential, to proceed from the Influence of the *Air* : And in another Place ‡, he farther

* The *Phasians* were Inhabitants of the City *Phasis*, in the ancient Kingdom of *Colchis*, upon the easternmost Side of the *Black Sea*, between *Georgia* and *Circassia*, not far from the ancient *Sauromatæ*.

† *Hippoc.* lib. de Flatibus.

‡ *Hippoc.* lib. de Morbo Sacro.

ther affirms, that *Air* gives Sensation, Life and Motion to all the Members of Animal Bodies ; for which Reason he strenuously recommends *Astronomy* as an essential Part of the true Knowledge of the *Art of Healing* ; and says, that if any one should think it to be only *Meteorological Speculations*, he may soon learn, if he can part with his Opinion, that *Astronomy* is so far from being of little Use in Physick, as to be of the greatest ; for as the Seasons change, so do the Constitutions of Men likewise § : And to prove the Usefulness of *Hippocrates's* Doctrine and Opinion in this Particular, we need only consult a Treatise of a Cotemporary learned Author, who is not only an Honour to his Country, but likewise an Ornament to his Profession, wherein we shall find not only the Usefulness of *Astronomy* in the Art of Physick, but likewise the Influence of *Air* upon human Bodies geometrically demonstrated †.

Hippocrates goes on still farther in the same Book, and says, that where the Variety of the Weather is oftenest, and the Difference between the Seasons greatest, there the Nature, Customs, and Habits of the People will be found most different, which are the principal Causes of all the Changes in Nature ; and next to these, the Country wherein we are brought up, and the Waters we are obliged to drink ; for we

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shall

§ *Hippoc.* in his Book of Water, Air, and Situation.

† *Richardus Mead* de Imperio Solis & Lunæ in Corp. Hum.

shall generally find that the Complexions and Manners of the People correspond with the Nature of their Country.

He has left us a curious History of Diseases, and the Weather, in his valuable Books of Epidemics, from whence he drew many useful and nice Observations; and where we may see a vast Conformity between the Constitution of the Air, and that of Distempers, throughout the whole Work.

The Constitution mentioned in his 1st Section, was a wet *Autumn*, the Winter dry, with southerly Winds and very little northerly, the Spring cold, with southerly Winds, a little wet, a cloudy and dry Summer, with little or no northerly Winds to cool the Air; in this Constitution he observ'd some few burning Fevers of a good sort, some with *Hæmorrhages*; a great many had Swellings behind both or one Ear, but generally without a Fever, and disappear'd without much Inconvenience or Suppuration.—

The Constitution of the next Year, related in Section the Second, was a wet Autumn, with northerly and southerly Winds; the Winter was moist and affected with cold northerly Winds, attended with great and heavy Showers of Rain and Snow, and a cold and northerly Spring, both watery and cloudy; the Summer not very Scorching, and was continually affected with northerly Winds, and a great deal of Rain fell again suddenly; so that the whole Year being cold and moist,

moist, and attended with northerly Winds for the most part, produced Inflammations of the Eyes in the Spring, and in the Summer, *Colicks*, *Fluxes* of the Belly, with *Bilious* Purgings, and sometimes *Bilious* Vomitings with *Phlegm* and indigested Food, some with *Catarrhus* Fevers, others again without Fever or Confinement; but they all in general sweated, Moisture being then so redundant every where.

In the *Autumn* and Winter continual Fevers appear'd; there were likewise diurnal, nocturnal, tertians, semitertians, some quartans and erratick Fevers; besides some were afflicted with *Catarrhs* and *Defluxions* upon their Joints; *Convulsions* were also frequent among Children; all such Diseases being the natural Product of a Cold and Moist Year, affected by too much Moisture in the *Air*, which human Bodies continually breathe and imbibe.

He tells us in his third Section, that the Constitution of that Year was a cold dry Winter attended with northerly Winds, as was likewise the Spring and Summer till towards the beginning of the *Dog-Days*, then scorching Heats and Droughts continu'd till *Autumn*, which prov'd to be moist and rainy: This Year was remarkable for *Paraplegias* or *Palsies*, which were epidemical in the Winter; likewise *Hæmorrhages* of all Kinds and *Dysenteries* reign'd in the Spring and Summer, being the Effects of a Constriction of the *Fibres*,

occasion'd by too much Cold and Drought ; burning Fevers with *Delirium* and Thirst, beginning with Shiverings, Watchings, Nauseas, and Anxiety continued, which were most dangerous and fatal to young and vigorous People, especially in the *Autumn*, but most of all in the Winter, when the *Hæmorrhages* ceas'd.

In his Second Book he attributes the great Frequency of *Carbuncles* and other large Pustules of the putrid kind in Summer to the great suffocating Heats attended with Calms and Moisture ; and that Sweats succeeded Showers, because Moisture relaxes the Fibres of the Body ; that inflammatory Diseases, such as *burning Fevers*, *Pleurisies*, &c. are most violent in a dry and hot Summer ; that in constant and settled Weather and Seasons, the Distempers will be more equal and of a good Sort and easily determined ; but that if the Weather is variable they will likewise be irregular and resolv'd with difficulty ; that the Diseases of the Spring are least destructive of any of the other Seasons : He likewise remarks that a mild *Winter*, attended with southerly Winds, a dry *Spring*, and a moist *Summer* with small Rains, produced Fevers, and Tumours or Swellings behind the Ears.

In his third Book he observes a kind of a Pestilential Season, which proceeded from a hard Winter, a rainy warm Spring, succeeded by an excessive hot Summer with little or no Winds ; it was notable for all inflammatory

matory Pimples and Eruptions upon the Skin, and likewise for all Distempers of the *putrid* Kind, such as *Erysipelas*, *Aphtas* and *Ulcers* in the Mouth and Throat, burning Fevers with *Deliriums*, *Tubercles* upon the Private Parts, *Inflammations* of the Eyes, *Carbuncles*, Swellings in the Groins, *Abscesses* and Defluxions upon the Joints, some with Suppurations of *Pus* well digested, and others again with a copious Running of putrified Matter of different sorts.

He remarks in his sixth Book, that the frequent Alterations of the Winds from South to North, are very often the Cause of Inflammations of the Lungs and other Parts of the Body ; and that, generally speaking, the Nature of the Diseases is determined by the Seasonableness of the Weather, as it happens sooner or later, either dry, cold, hot, moist, and attended with Winds or otherwise.

From these few Instances, we may easily discover the great Genius, Sagacity, and Industry of this *Divine old Man*, as likewise with what Affiduity and Integrity he apply'd himself to study the Nature and Influence of the *Air* upon human Bodies ; wherein he succeeded better than any one of his Profession : And if his Successors had laid aside all their ridiculous, and, as I may say, absurd *Hypotheses*, together with their useless metaphysical Speculations, and followed the same Method with the same Perspicuity and Honesty as he did, to this present Time, we then should have had more
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than a conjectural Knowledge, both of the Nature and true Causes of Diseases, especially of Epidemics, which at this Time puzzle even the greatest *Physicians*. Therefore Reason join'd with Observation is the only certain Method we should pursue in order to come at the true Knowledge of Diseases and their Cure ; for it evidently appears in the Annals of Physick, that the small Number of *Physicians* who have happily attended to it, made so considerable a Figure in their Profession, that they will always shine, even to the latest Posterity.

The ingenious Dr. *Arbuthnot* having explain'd *Hippocrates* and others upon the Subject of the Influence of *Air* on human Bodies and Diseases, so accurately well, according to Mechanical Principles, that nothing can excell it ; therefore, I thought it not only proper, but likewise very useful and necessary to give the Reader an Abstract of what he says upon that Head in this Place.

He observes, that as this Subject has not been treated of by modern Physicians with that Accuracy it deserves, Observations of that kind are but few, and there is no Series of them in any Country : What would give most Light in this Matter, is a Collection of Observations in Countries where both the Qualities of the Air have great Excursions towards Extremes, where the Seasons and these Excursions, and the Diseases depending upon

upon them are regular. *Egypt* is a Country which answers all these Intentions in some Degree: It is situated between *Ethiopia*, the *Mediterranean* Sea, *Arabia* and *Barbary*, which lie, in the Order mention'd, South, North, East, and West of it. *Grand Cairo*, where *Prosper Alpinus*, a very eminent Physician, practis'd and made his Observations, lies in 30 Degrees Northern Latitude, as *Ptolomy* says, 6 Degrees beyond the Tropick of *Cancer*. This great City is situated at the Foot of the Mountains of the *Stony Arabia*, which lie towards the East. It is quite expos'd to the northerly Winds which blow over the *Mediterranean*: Southerly of it there is a hot sandy Soil; so that the Alterations of Heat and Cold, as the Winds blow North and South, over the *Mediterranean*, or over this hot Sand are excessive, and the Alterations of Heat and Cold from the other Winds but small, lying near the Tropick; and as it is a sandy Soil, fructify'd only by the Slime of the River *Nile*, without Rain, there is hardly any humid Perspiration from the Ground itself, the Air receiving Moisture only from the watery Surface of the *Nile* during the Inundation, or from the Vapours brought from the *Mediterranean* by the northerly Winds.

From these Causes the *Air* is extremely hot, and the tropical Heats would be insufferable, were it not for the Northerly Winds.

And

And in fact, the Heats are sometimes so vehement, that the Inhabitants defend themselves from them by many Contrivances, such as Fountains in the middle of their Houses, Pipes to convey fresh Air by Grottos, and high Edifices, by which their Streets are shelter'd from the Sun, and a temperate Diet. During the tropical Heats *, the Air is sometimes so much moisten'd and cool'd by the Notherly Winds, and the watery Surface of the *Nile*, that the acute and pestilential Distempers are check'd by this Constitution of the *Air*: the Inhabitants often suffer from Catarrhus Distempers, more than in Northern Countries, their Bodies being more delicate, and their Pores more open by the preceding Heat.

As to their Seasons, their Spring lasts from the Beginning of *January* to *March*; their *Summer* is double, the first, from the Beginning of *March* to the *Solstice* †, and the second, from the *Solstice* to the Beginning of *September*; and this second *Summer* is more constant, healthy, and less scorching than the first, by reason of the difference of the Winds, and other Causes hereafter mention'd. Their *Autumn* lasts *September* and *October*; and their *Winter*, *November* and *December*.

The extreme Heat of the first Summer proceeds from the hot Winds which blow
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* *Tropical Heat*, see p. 116. Note *.

† *Solstice* is likewise explain'd in the same Note.

from the South and South-East, called by the Inhabitants *Campsin*, from their Continuance of fifty Days; tho' they have no determin'd Time, but last sometimes more than three Months, and reign *March, April, and May*; they blow over the Sands, which they raise in Clouds, sometimes so as to darken the Sun: during this Time, many epidemical Diseases rage, especially Inflammations of the Eyes, a Fever, which the Inhabitants call *Demelmuia*, attended with a *Delirium*, and proves often mortal in a few Hours, and even the Plague itself. And this extreme Heat has sudden Interruptions of Cold, which renders the Inhabitants still more unhealthy, and they live under Ground during the *Campsin*.

The Heat during the Months of *June* and *July*, which by the Course of the Sun should be the greatest, is so moderated by the Northerly and moist Winds blowing over the *Mediterranean*, and by the overflowing of the *Nile*, that the Inhabitants grow healthy, and sow their Seed in the Months of *September* and *October*. Their Winter has seldom any Snow, Frost, or Rain, or any thing besides Dew, unless in some Places bordering upon the *Mediterranean*, and receiving Clouds from thence. So that the reigning Winds in *Egypt* are the Southerly, blowing as it were from an Oven; and the Northerly, moist and cold over the *Mediterranean*, and this last perhaps two Thirds of

the Year, and during the greatest Solar Heats.

Another Cause by which both the Heat and Drought of the *Air* is temper'd, is the overflowing of the *Nile*, which rising in the Mountains of *Ethiopia*, bends its Course Northerly thro' a Tract of Land near 30 Degrees. By the Rains falling in those Mountains, the *Nile* has ever since the Memory of Man begun to swell the 17th of *June* New Stile; and it rises every Day about 8 or 10 Inches, and begins to fall in *August*, and decreases till *May*, when it is in a manner stagnating. The Limits of its Height are, from 26 the highest of all, to 18 the lowest, in Cubits; the middle 24; 18 is a Height barely sufficient to make an Inundation. Its Water not only refreshes the *Air* with a kindly Moisture, but is the most delicious Drink in the World, when purify'd by the Deposition of its Sediment, being of itself a Cure for most Distempers, where *Dilution*, a *Diuresis* or Sweating is necessary, as *Prosper Alpinus* found by Experience.

There are several remarkable Things in the Constitution of the *Egyptian Air*; for the Perspiration of the Soil, which is sandy and barren, cannot affect the *Air* very much, the Exhalations being mostly either from the Surface of the Inundation, or the Mud and Slime after it is over. The natural Heat and Dryness of the *Air*, and the Change from that to cooler Moisture; the Abate-
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ment of the Tropical Heats by Northerly Winds; the Extremity of Heat and Drought, by the Southerly Winds blowing over Sands, and the Moisture again induc'd by the Clouds from the *Mediterranean*, and the Inundation; the Exhalations from stagnating and putrid Water, when the Inundation is quite over; and lastly, the Temperance and regular Diet of most of the Inhabitants, must give a fair Experiment of the Effects of *Air* upon human Constitutions. And accordingly, those who labour and live hard, and cannot defend themselves from the Injuries of the Wind, mostly hot and dry, are extreamly lean and squalid. The Rich, by a plentiful and nourishing Diet, and preserving themselves from the Heat and Drought, by Bathing, Relaxation of their Fibres by drinking the Water of the *Nile*, are often fat.

The *Air* of *Egypt* having no noxious Qualities from the Perspiration of the Ground, were it not from the accidental ones above-mention'd, would be extremely wholesome; and the People who know how to defend themselves from those Accidents, live to great Ages. The frequent Changes of Heat and Cold, Moisture and Drought, produce all the Distempers of the *Catarrhus* Kind, and *Arthritick* Diseases; and by the strong Perspiration, *Leprosies*, even *Elephantiasis*. The Effects of a hot dry *Air* by a Southerly Wind, blowing over a sandy Country, are felt strongly; inflammatory Distempers, especially

pecially a raging Fever with a *Phrenzy*, called *Demelmuia*, mortal in a few Hours: they feel likewise all the good Effects of the Abatement of this Heat and Drought by Northerly Winds, and the overflowing of the *Nile*: They are likewise subject to all the Diseases from putrid and stagnating Water, and Exhalations from Heat after the Inundation is over, and these are often pestilential.

Pestilential Distempers are frequent in *Egypt*, and what I think demonstrates the *Plague* to be *Endemial* * to that Country, is its regular Invasion and going off at certain Seasons, beginning about *September*, the time of the Subsidence of the *Nile*, and ending in *June* the time of the Inundations. In the first Case, are all the Causes productive of Putrefaction, Heat, and putrid Exhalations, and no Winter Frost to check them. But what is wonderful, the *Plague*, and the Fevers from the Heat of the *Campsin*, go off by the Northerly Winds, and the overflowing of the *Nile*: and the wholesome Quality of Northerly Winds for checking pestilential Distempers, has been observ'd by all ancient *Physicians*. And to shew that the *Plague* depends upon the Temperature of the *Air*, *Prosper Alpinus* takes Notice, that upon the swelling of the *Nile*, the Infection, and

* *Endemial* or *Endemick*, is a Disease that infects a great many in the same Country, proceeding from some Cause peculiar to the Country, or the Place where it reigns, such as the Scurvy to the Northern Climes, the *Plague* to *Turkey* and *Egypt*.

and even the Danger from infected Cloaths and Furniture goes off; besides the cooling of the *Air*, the Northerly Winds may dissipate the stagnating Vapours, and the running of the *Nile* the stagnating Waters. *Hippocrates* and *Galen* have both observ'd, that the *Etesiae*, or Northerly Winds blowing in Summer, made a wholesome Season; but this Observation is more sensible in hot Countries than in ours.

Boutius, a very learned and sagacious Physician, has left us a Description of the Air and Diseases of the Inhabitants of *Java*: it is situated under the Line, and is very hot; it is likewise moist, from the great Quantities of Rain and stagnant Waters; and from Heat and Moisture, and Salts produc'd from those Qualities, the putrifying Quality of the *Air* is very manifest in rotting of Cloaths, and rusting of Metals. From these Qualities the *Air* feels to human Bodies piercing and active; and as all the Inhabitants of hot Countries have that Sensation of the penetrating Qualities of *Air*, Cold after great Heats, which proceeds chiefly from the Pores of their Skin being relaxed before by Heat, such Bodies must imbibe *Air* faster.

In *Java*, as in *Egypt*, the Northerly Winds render the *Air* wholesome, by abating the extreme Heat; some Land Winds carrying along with them the stagnant Vapours, are often otherwise. The Soil being here fruitful and rich, emits Steams, consisting of

volatile and active Parts, which fructify the Soil, but are hurtful to human Bodies.

The Seasons here cannot be distinguish'd by their Heat, by reason of the Smallness of their Latitude: there are only two, what may be called Winter is the rainy Season; this Season is attended with Diseases which depend upon Putrefaction. The Inhabitants measure their Seasons of Heat and Cold by the times of the Day; the Mornings and Evenings are cooler by the Absence of the Sun, and by the Sea Breezes; the scorching Heat of the middle of the Day makes that Time unfit for Business.

The popular Diseases here are, a kind of *Palsy*, called by the Inhabitants *Beriberium*, the Cause of which is evidently cold *Air*, imbib'd by the Pores of the Skin, extreamly relaxed by Heat before, and therefore invades such as incautiously expose themselves to the Morning *Air*, or throw their Bed-clothes off in the Night. Another Disease, called * *Catalepsis*, is likewise popular in this Country, proceeding from the penetrating Qualities of the *Air* imbib'd by relax'd Bodies, which renders the Patient rigid like a Statue, and dies in a few Hours. *Diarrhæas* and *Dysenteries* are common from the same Cause, by sudden Suppression of Perspiration. It is a Matter of Observation, that great Heats exalt the *Bile*, by exhaling the watery Particles which dilute it, by a strong sensible Per-

* *Catalepsis*, is a convulsive Disease like an Apoplexy.

Perspiration ; and therefore the *Cholera Morbus* †, and other Diseases of the Liver, are common and fatal in the *East-Indies* ; and from diseased Livers, *Dropsies* and *Atrophies* are frequent in *Java* : and in this Country Fevers are seldom intermitting, but continual, with *Phrensies*, and other dreadful Symptoms, as during the *Campsin* in *Egypt*, proving mortal in a short time.

It seems agreeable to Reason and Experience, that the *Air* operates sensibly in forming the Constitutions of Mankind, the Specialities of Features, Complexion, Temper, and consequently the Manners of Mankind, which are found to vary much in different Countries and Climates. As to Features, what an infinite Variety arises from the Combination of the Parts of a human Face ! so that since the Creation of the World, perhaps there were never two, upon a narrow Inspection, that perfectly resembled one another ; for there are Faces not only individual, but *Gentilitious* and *National* ; *European*, *Asiatick*, *Chinese*, *African*, *Grecian* Faces, are characteris'd : and this Diversity of National Features and Shapes is not altogether the Effect of Propagation from the same original Stock ; for it is known by Experience, that Transplantation changes the Stature and outward Shape both of Plants and Animals.

† *Cholera Morbus*, is a convulsive Motion of the Stomach and Guts, whereby the *bilious* Excrements are discharg'd in great Plenty, both upwards and downwards.

Hippocrates makes great Account of the Influence of the *Air* upon the *Fætus*, both before and after Birth. He is of Opinion, that the great variety of *European* Faces, is owing to that of the *Air* and Seasons, as has been observ'd in another Place, there being such great Excursions in the Extremities of Heat and Cold, that their Offspring is as it were begot and brought forth in different Climates.

That the Shape of Animals should be modify'd by the *Air*, is in no Ways unaccountable; for an Animal growing, expands its Fibres in the *Air* as a Fluid, which by a gentle Pressure resists the Motion of the Heart in the Expansion and Elongation * of the Fibres; and tho' the Fibres of several Animals shoot as it were in this Fluid, according to their original Shapes, yet such a Fluid resisting by its Pressure, is, in respect to the Animal, like a soft Mold, in which the Body is form'd; and therefore, according to the Quantity of its Pressure, depending upon its most permanent State of dense, rare, hot, cold, dry, moist, must have some Influence in forming the outward Figure of such a Body in a State of Accretion or Growing: besides this outward Pressure, the *Air* being mix'd with the Animal Fluids, determines their Condition as to *Rarity*, *Density*, *Viscosity*, *Tenuity*, and several other Qualities.

That

* Lengthening.

That the Complexion depends much upon the *Air*, is plain from Experience; the Complexion of the Inhabitants of several Countries being fair, swarthy, black or adust, according to the Degrees of Heat, Drought, Moisture, or Coolness of the *Air* they live in; for the Inhabitants of Countries in great Latitudes are generally fairer than those that live nearer the Sun.

That the Temper and Passions are influenc'd by the *Air*, is no less certain: People of delicate Nerves and moveable Spirits, are often joyful, sullen, sprightly, dejected, hopeful, despairing, according to the Weather; and these Changes happen in stronger Constitutions, but pass unobserv'd.

There are Days in which the intellectual Faculties of Memory, Imagination, Judgment, are more vigorous; therefore it seems probable, that the Genius of Nations depends upon that of their *Air*; for Arts and Sciences have hardly ever appear'd in very great or very small Latitudes. The Inhabitants of some Countries succeed best in those Arts which require Industry and great Application of Mind; others in such as require Imagination: from hence some Countries produce better *Mathematicians*, *Philosophers*, and *Mechanics*; others better *Poets*, which besides the Rules of Art, require Imagination; and it seems, that Labour is more tolerable to the Inhabitants of colder Climates, and Liveliness of Imagination to those of hot.

There are two Things common to all Mankind, *Air* and Aliment, and both differ very much in their Qualities, in different Countries and Climates; but those of the *Air* perhaps are more different than those of the Aliment or Food. In perusing the Accounts of the Temper and Genius of the Inhabitants of different Countries, we discover in them a great Uniformity, even tho' the Race has been chang'd; for the Temper of the *Gauls*, describ'd by *Cæsar* and other Writers, is much the same with that of the present *French*, of which there is a remarkable Instance in the *Misopogon* of the Emperor *Julian*; he tells us, that he had passed a Winter at *Paris*, where there were more Comedians, Dancers, and Fiddlers, than there were Citizens besides. And I believe if a Race of *Laplanders* were transported thither, in a few Years they would be found in the Condition describ'd by the Emperor *Julian*.

If we consider the Causes assign'd by *Hippocrates*, of the different Temper of the Inhabitants of different Climates, we shall find them sufficiently proportion'd to their Effects. In Northern Countries, where the Alterations of the Height of the Mercury in the *Barometer*, and consequently of the Weight of the *Air*, are frequent and great, the Fibres of human Bodies are in a continual oscillatory * Motion from a Pressure of 1200, 1800,

* *Oscillatory Motion* is properly the Swing or Motion of a *Pendulum* of a Clock, and thence comes to be used for all tremulous or undulating Motions having Resemblance thereto.

1800, nay, 3600 more at one time than another; and tho' this, by the Softness and Rarity of the Fluid, is insensible, and not painful, it is a sort of Exercise, which the Inhabitants of Countries where the Variation of the Height of the *Mercury* is small or nothing, do not feel.

By the Difference of the Tension of the Fibres, the whole nervous System and the animal Spirits are in some manner affected: And let us consider again the Extremes of Heat and Cold in great Latitudes, operating after the same manner, relaxing and constringing the Fibres by turns, and the extreme Cold acting likewise as a *Stimulus*, in consequence of which we find an Activity and Tolerance of Motion and Labour in dry frosty Weather, more than in hot; whereas the People within the *Tropicks* are constantly in the State of our hottest Weather.

Therefore, whoever considers Mankind in such different Circumstances, will find, that the Temper both of their Body and Mind must be different, and that a greater Variety in the Oscillatory Motion of the Fibres of Northern People, must produce the same in their Spirits; and therefore a proportional Inequality in their Passions, and consequently greater Activity and Courage.

That the Inhabitants of Climates, where the Difference of the Weight, Heat and Cold of the *Air* is but small, feel only the Changes

Changes of the Tension of their Fibres proceeding from Drought and Moisture, being free from the Agitations and uneasy Sensations of northern People, proceeding from the Causes above-mention'd ; and the Motions of their Fibres and Spirits being more uniform, they may be for that Reason, and from excessive Heats, lazy and indolent.

That the Constitutions of Mankind differ according to the Qualities of the *Air* in which they live, is an uncontested Matter of Fact, and depends upon obvious Causes : For as *Hippocrates* observed, that the Inhabitants of moist Countries were bloated, *leucophlegmatic*, and dull, from the Relaxation of their Fibres, and the Moisture imbib'd with the *Air* ; and contrary Causes must produce contrary Effects : Heat indeed relaxes the Fibres, but by absorbing the Moisture may likewise harden, and render them more solid : For the Bones of Animals in hot Countries are more solid, and specifically heavier than those in cold Climates, as may be seen in comparing the Bones of the Limbs of *African* Horses with those of northern Countries.

The Blood likewise in hot Countries is thicker and blacker, by the Dissipation of the ferous Part by *sensible Perspiration*, which is Matter of Fact well attested by Physicians who have practised in those hot Countries : And from this black adust State of their Blood, they are *Atrabilarious* ; for
great

great Heats exalt the *Bile*, by dissipating the Moisture which dilutes it ; but *Bile*, of itself, is the most *unperspirable* of Animal Fluids, for it stops at the Surface of the Skin, and discolours it.

There is some *Anology** between Plants and Animals, and both are longer in coming to Maturity in cold and moist *Air* ; for the prolifick Age of Mankind is much earlier in hot than cold Countries, the Females being in that State at ten Years of Age. And the Inhabitants of warm Countries are not subject to be fat, for a strong *Perspiration* keeps an Animal from being so ; yet a copious Diet and Inactivity will always occasion Exceptions from the general Rule.

Cold and moist Air must necessarily produce phlegmatic and lax Constitutions, and by stopping *Perspiration*, with a copious Diet, accumulate the Animal Oil : But dry and cold *Air* in a Degree tolerable to human Bodies, which is a state of our Winter Frosts, creates a *strict* or tight Constitution of the Fibres, and all the Effects thereon depending, as Vigour and Activity, &c.

As the Force of human Bodies is limited, they are not capable of bearing Extremities of any kind, of too great *Rarety*, *Density*, *Heat*, *Cold*, *Moisture*, or *Drought* in the *Air*. From the same cause human Bodies do

* *Analogy* is the Relation which one Thing bears to another.

do not easily sustain violent and sudden Changes, which agitate the Fluids and Solids too much ; for as the State of our Fluids and Solids change with the Air, violent Alterations in the latter produce the same in the former. For Example : Suppose such a State of the *Air* as makes a great *Stricture* of all the external parts of the Body, and consequently an Abatement of the Circulation in the Vessels exposed to the *Air*, and in those which immediately communicate with them : Suppose again, the *Air* is suddenly changed from this State to one which violently relaxes the Fibres ; by their Relaxation it is possible that the Vessels which were destin'd before to carry the *Serum* or *Lymph*, may admit the Blood, which is an inflammatory State : Accordingly we find, that inflammatory Distempers of several kinds are rise in moist and warm Weather, preceded by hard and lasting Frosts : Frosts stop the *Perspiration* of the Earth, which being restored by Thaw, fills the *Air* with an unusual Quantity of Vapours, which affect human Bodies, not only by *Relaxation*, but as they imbibe them with the *Air*.

Cold both congeals the Fluids and constricts the Solids ; for it acts like a small Ligature upon the Vessels affected with it, by which the Circulation through the Vessels is retarded ; the natural Effect of which is a greater Secretion of Serosity through the
Glands

Glands contiguous; for the *Extremities* of the *Vessels* near the *Glands* being press'd, they cannot so plentifully carry off the re-fluent Fluid, by which there must be a greater Flux of Liquor towards the *Glands*, and consequently a greater from its *Emunctories*; therefore *Catarrhs*, or *Serous Defluxions* upon all the Parts of the Body, but especially from the *Glands* of the Head and Throat, are a natural Effect of Cold.

Obstructions by Cold in the outward Parts of the Body, drive the Blood pressing with greater Force upon the inward Parts, and increase Heat, and likewise may occasion a *Siziness* in the Blood: And Cold, by suppressing the *Perspiration* of Salts in the Blood, by congealing the Blood, and likewise by a painful *Stimulus* corroding the Skin, is apt to produce *Scurvies*, and other *cutaneous Eruptions*, and in extremity is capable of freezing the Fluids, and reducing Animal Substances to a *gangrenous* State.

Cold *Air* is also capable of rendering inflammatory Distempers with cutaneous Eruptions more dangerous, by hindering the Relaxation of the Skin; as the Small-pox is found to be most fatal during hard Frosts, and cold north-easterly Winds. Cold *Air* likewise, by its immediate *Contact* with the Surface of the Lungs, is capable of abating or stopping the Circulation of the Blood, and bringing them into an inflammatory State, and by producing *Catarrhs* and Coughs,

is

is productive of all the Effects of such *De-fluxions* upon the Lungs, as *Ulcerations*, and all Sorts of *Pulmonick Consumptions*.

Hot and moist *Air* producing *Relaxations*, and consequently an Abatement of the Force of the Solids in propelling the Fluids, must produce *Stagnation*, *Tumours*, and *Putrefaction* in the Liquids, and all the other Diseases depending upon a *lax* State of the Fibres: *Hippocrates* observed such Diseases always consequent upon a moist Constitution of *Air* with southerly Winds, which are warm; and the same has been often observed here in *England*.

As *Perspiration* is the last Action of perfect Animal Digestion, that Constitution of *Air* which suppresses *Perspiration*, must hinder Digestion; therefore cold and moist *Air* must be hurtful to the Stomach: And as *Catarrhs* and *Coughs* are the Effects of cold and moist *Air*, and those habitually affecting the Lungs, they often produce *pulmonick Consumptions*; yet it seems probable, that where those Consumptions are a popular Disease, they proceed from some particular Acrimony in the *Air* of that Country, affecting that tender Organ by immediate Contact, and perhaps most of the Glands of the Body; for our Consumptions are for the most part *scrophulous*, and *scrophulous* Distempers are common in this Country. And where the *Air* is charg'd with any saline acrid Particles, they will naturally coagulate

agulate the Fluid where they touch; and from the abundance of Mineral Waters of all Sorts in *England*, it may be inferr'd, that there are abundance of Mineral Steams, which are capable of producing such Distempers.

From what has been said on the Subject of the Influence of *Air* upon human Bodies, it is plain that no vitious State, either of the Solids or Fluids, but is producible by the common *Properties* and *Qualities* of *Air*, and their Changes and Combinations. By the *Qualities* of the *Air*, the solid Parts may be stimulated: For example, the *Stimulus* of extreme cold *Air* is very sensible.

Heat, or any *Quality* of *Air*, so excessive as to produce a painful Sensation, acts as a *Stimulus*: And what obstructs the Passages of the Vessels which communicate with the *Air*, is stimulating, by increasing the Force of the Heart and Fibres to overcome the Obstruction; this either Cold or Moisture may do, which often produce, first a Chills, and then a succeeding Heat, which are feverish Symptoms. Many volatile Particles floating in the *Air*, as the *Odoriferous* Vegetables, act as a *Stimulus*, and produce Heach-Achs, as we often find.

That the Fibres are constring'd and relax'd by the Alterations of the *Properties* and *Qualities* of the *Air*, has been already demonstrated; and that the Fluids may be vitiated in the same manner, is no less plain: That the Blood may be condensed
by

by Heat, by absorbing the most fluid Part ; That a certain Degree of Heat will attenuate, and a greater coagulate the *Serum* ; and that Heat in general is capable of producing great Acrimony and *putrid* Fevers of all Sorts, is true from Experience : And any Degree of Heat greater than that of a human Body will do so ; for our natural Heat is near the Degree of Coagulation. Cold likewise condenses the Fluids in immediate Contact with it ; and is capable of producing *Siziness* and *Viscosity* of the Blood : And by the same Causes Acrimony of all Sorts, to the Degree of Putrefaction, is producible by *Air*.

Evacuations of all Sorts, from all the glandulous Parts of the Body, are producible by the Stoppage of *Perspiration* by Cold ; for there is no *diuretick* Medicine that works so strong in a Flux of Urine, as a Suppression of the *perspirable Matter* in *hysterical* Cases. Cold likewise promotes all *Catarrhs* and Coughs ; and moist Air, *Diarrhæas*, and copious Secretions from the Glands of the Guts, without which Evacuations, Stoppage of *Perspiration* produces a *Plethora* or Accumulation of the Humours in the Vessels.

From these Considerations it appears, that the Diseases, especially the Acute of any Season, chiefly depend upon the Constitution of the *Air*, by which they are modified as to their *Rifeness*, Duration, Degrees of Danger, their particular Symptoms, Circulations and Periods : In which we must not
only

Ch. IV. *thro' the various Stages of Life.* 145
only consider the present, but likewise the preceding State of the *Air*; because, as they are more similar, or contrary, so the Alterations produced in human Bodies are more or less violent; particularly it will be found, that sudden Changes from the Extremes of Cold and Dry, to Heat and Moisture, are Causes which operate strongly in modifying the Diseases of that Season.

That long and excessive Heats, by inducing Weakness, are apt to stamp the succeeding Fevers with nervous Symptoms: That such a dry Constitution of *Air*, as is apt to contract the Skin, and obstruct its Pores, makes the *Crisis* by sweating more difficult; and perhaps the different Periods of Fevers, *Quotidian*, *Tertian* and *Quartan*, may depend upon a preceding greater Viscosity, or Obstruction in the Vessels, produced by the Constitution of the *Air*: That the more dangerous State of the Small-pox, and other inflammatory *cutaneous Eruptions*, depends upon the *Air*; and it seems very plain, as it induces a greater Laxity or Stricture of the Fibres, or creates Obstruction in the Vessels of the Skin.

That Diseases of the Lungs, as far as they are not the product of bad Diet, depend chiefly upon the Qualities of the *Air*, seems evident; for the Lungs are expos'd to the outward *Air*, which has an immediate Admission into the Air-bladders, and perhaps into the Blood-vessels; and whatever Effect

the Air has upon the Skin, this must be expected upon the Lungs in a particular Manner. Thus far I thought necessary to give the Reader an Abstract of the ingenious Dr. *Arbuthnot's* Explanations of *Hippocrates*, and others, on the Subject of the Influence of Air upon human Bodies.

But to conclude, I shall only add ; that of all the Causes that are capable of altering our Bodies, no one is so necessary and so sudden as the *Air* ; the Necessity of which is evident from the use of *Air* in Respiration ; for if it happens, that any of the chief Organs appropriated either for the Entrance or Reception of *Air* receive any great Injury, the Animal dies suddenly by Suffocation ; whereby it manifestly appears, that Air and Life in perfect living Creatures are inseparable.

According to *Hippocrates*, natural Heat is preserv'd by moderate cool *Air* ; for if you take away the *Air* from Fire, it will not burn, but will immediately be extinguish'd : and our Spirits, which are the principal Instruments of the Soul, are generated and nourish'd by *Air*, and supported by its going in and out ; and it is principally for this Reason that our Bodies are every where perforated or porous, that our Arteries are continually beating, and that Nature has made such admirable fine Mouths to the two Vessels called the Lungs ; so that the *Air* is as necessary.

cessary to a living Creature as the Soul itself.

As to the Suddenness of the *Air*, we feel it every Moment; for it instantly ascends to the Brains by the Nose, and traversing almost an infinite number of minute Passages, which are to be seen in the admirable Net-work of animal Bodies, proceeds to the inmost Re-cesses of the Body, and descends with incredible Velocity into the Lungs by the Mouth, and thence to the Heart: it likewise penetrates the Pores of the Skin insensibly, and enters the Arteries by Transpiration, as far as the deepest Cavities of our Bodies; it surrounds us always, and never abandons us one Minute; so that we must constantly imbibe or suck it in whether we will or not.

The Divine *Hippocrates*, being thoroughly acquainted with the Power of *Air* upon human Bodies, tells us in his *Epidemicks*, and in the second Book of *Diet*, that the whole Constitution of the Spirits, Humours, and the Body, depends entirely upon the *Air*. Therefore the Choice of good *Air*, and a pleasant Habitation, must always claim the first Rank in the Regimen of Health; so that such as would preserve their Health, and obtain a long Life, ought to know the Goodness of the Air, as well in regard to its Substance as to its Qualities.

As to its Substance, when it is pure and has no Seeds of Corruption, and that it is

not impregnated with malignant Vapours proceeding from dead Bodies, or from the Sinks or common Shores of great Cities, or standing Waters; or from the sulphureous Exhalations of Mines, combin'd with different Salts, or metalline Particles, which are stinking, oily, and inflammable, of which I treated at large already in Part II. Chap. I.

But if the *Air* happens to be corrupted or infected, and that we cannot remove as soon as we would, it must be purified with artificial Fires made of Rosemary, Juniper, Laurel, Cyprus, and Perfumes made of Aloeswood, Juniper-berries, and other Aromatics; likewise the Steams of Vinegar correct the Malignity of the *Air* in a surprizing manner.

As to the Qualities of the *Air*, all Excesses of Heat, Cold, Moisture and Dryness, are pernicious; for which Reason we should chuse moderate *Air* if possible; therefore serene Air moderately hot and dry, blowing from clear inland Places, or from Rivers with a gentle Breeze, free from sudden and great Changes, open and rural, purg'd of salt and oily Exhalations, is generally the best to preserve Health.

As to what regards ancient People, a warm *Air* is certainly the best for them, and their Chambers should never be without Fire, especially in the cold Seasons of the Year; for it is experimentally true, that their State of Health is much better in Summer than in Winter;

Winter ; because they always carry the Winter along with them. Their Bed-Chambers should be in the upper Apartments, and their Houses open to the East, that the Morning Sun might enter their Rooms: there should likewise be an opening on the North Side, in order to let in *Air* from that Side, and by that Means to purify the *Air*, and expel all noxious or offensive Steams and Vapours out of their Chambers.



C H A P. V.

Of ALIMENTS in general.

ALIMENT includes all that is taken in as Meats and Drinks, from whence *Nourishment* is expected, which is what supplies *Nutrition*. And what comes under this Term is threefold: *First*, all that passes in the first Stage from Mastication, or Chewing, to the *Chyle's* Entry into the Blood is so call'd. And *Secondly*, the Apposition of new Parts in the Room of those wore off by Action. *Thirdly*, when the Chyle after various Circulations with the Blood, is deprived of all that can be of farther Use to any Part of the Body, it is carried off both sensibly and insensibly through the *Emunctories* of the Body.

*The first Stage
of Digestion.*

The first is carried on in the following Manner: The Parts of Food being divided by Chewing, and moisten'd with Spittle, that it may be render'd softer in order to undergo a farther Comminution, is thrust down into the Stomach; wherein, by the Assistance of the continual Motion arising from the musculous Coats of the Stomach, and of *Respiration*, by which the * *Diaphragma* alternately presses the Stomach downwards, the Parts of the Food soften'd by the *Saliva* or Spittle, and other serous Liquors from the Glands, is shook about, ground and divided into yet smaller Parts, until it acquires such a Fineness as is requisite, together with the glandulous Fluids and Liquors drank down, for composing that milky Fluid call'd *Chyle* †. But here we are to observe, that the Parts of the Food are not dissolv'd into essential Parts, or Elements, whether chymical or any other, by the Assistance of any Ferment in the Stomach; that is to say, by a Separation of some Parts of different Kinds combined together, and an Union of other Parts that were before separated, as it happens in all Fermentation of Wine, wherein tartarous Particles, before united

* *Diaphragma*, or *Midriff*, is a transverse *Muscle* which separates the *Thorax* or Chest from the *Abdomen* or Belly; in the Middle it is membranous; the *Gullet*, the great Artery, and the great hollow Vein all pass through it: It conduces to *Respiration* with other *Muscles*, and pressing upon the Guts helps forward the Secretion of the Excrements.

† *Chyle* is that milky or Emulsion-like Juice, which the Food is immediately converted into by Digestion.

united with others, are separated ; and Particles of Phlegm and Oil, before in Separation, are brought nearer together, and form a true Spirit.

But by the Concoction that is perform'd in the Stomach, the Food is divided into integral Parts, not differing from what they were before, only in obtaining a lesser Bulk ; altogether in the same Manner as Coral is grinded upon a Marble with Water, and reduced to an impalpable Powder, whose Parts are only small Pieces of Coral, and not any Principles into which Coral is resolv'd. For the Proof of which there is no need of any other Argument, than that in the Stomach and the Intestines of the larger Fish, that devour and digest the lesser, the Chyle is nothing else but a Liquor filled with the Fibres of the devoured Fish, as may be easily discerned with a Microscope ; or the small Parts of Fibres no way differing from the larger, only in Magnitude, that is, indigested Pieces of Flesh.

The Chyle being thus elaborated in the Stomach by its alternate Contractions, and the Force of the neighbouring Muscles, is thrown out into the Intestines, at its Entrance into which it is diluted with the *Bile* and *pancreatic Juice* : which Liquors undergo no manner of Effervescence * with the Chyle, or with one another, but are smoothly and

K 4

quietly

* *Effervescence* signifies an intestine Commotion produced by mixing two Bodies together that lay at rest before ; attended sometimes with a hissing Noise, Frothing, and Ebullition :

quietly mixed therewith, and with each other, as appears by many Experiments; and by their Means the Chyle is render'd more fluid. Hence it follows, that the Parts of the Food, in some measure dissolved by the Motion of the Stomach, but not sufficiently separated from each other, thro' want of a due Quantity of Fluid, every one yet being in some measure in Contact with one another, pass over the *Pylorus* * into the Guts; and when these greater or less digested Particles cannot be strain'd in any considerable Quantity into the *Lacteals* †, by reason of their Magnitude, they are yet thrust farther into the *intestinal Tube* ‡, and therein putrify, as they are out of the Limit of Circulation, which begins at the Lacteals: For all Things, such as the Flesh of dead Creatures, Herbs, &c. that are capable of Putrefaction out of the Animal, are capable of Digestion in it.

Hence

For Example, Acids, such as Juice of Limons, Spirit of Nitre, &c. and Salt of Wormwood, Tartar, or other Alkaline Substances, being mixed together, will produce an Effervescence or Ebullition.

* *Pylorus*, or *Janitor*, the right Orifice of the Ventricle or Stomach, which sends the Food into the Guts.

† *Lacteals* are long and pellucid Vessels or Veins, which arise from all Parts of the small Guts, from whence they receive the *Chyle*, and run to the Glands of the *Mesentery*. They are call'd *Lacteals* of the first Sort, being so very small; and from thence they convey the *Chyle* to the common *Receptacle*, and being larger are call'd *Lacteals* of the second Sort, and thence it is carried into the *Thoracick Duct*, and from that into the Blood in the left *Subclavian Vein*.

‡ *Intestinal Tube*, the hollow Pipe of the Guts from one End to the other, which is divided into six Parts.

Hence it is certain, that Digestion is much more effectually and expeditiously perform'd in the Day-time, or when we are awake, than in the Night, or during Sleep; because while we wake we breathe thicker, and the *Diaphragma* and Muscles of the Belly, and even the whole Body is more exercised, and consequently the Stomach is oftener compress'd. It also follows, that by gentle walking, or while we exercise ourselves in any moderate Motion, Digestion is more effectually and expeditiously performed, than while we sit in Idleness and without Motion; and still much better than when we sit hard at Study, because by this Means the Mind is so diverted, that our Respiration then is rarer, even than in our Sleep, and the Muscles are thereby less contracted: And that we digest better in Winter than in Summer, is a Confirmation hereof; because in the Winter, to drive away the Sense of Cold, we are oftener put upon Exercises and greater Activity of Body than in the Summer Season; as likewise, because the Muscles and solid Parts are more tense, and consequently stronger in their Contractions and Attritions*.

But as for a Ferment in the Stomach, according to the wrong Notions of some, whether it be Spittle or Serum oozing out from the Glands of the Stomach, it cannot contribute any thing to the Digestion of the Food, any farther than by softening it, whereby it

is

* Rubbing, grinding.

is capable of being farther divided. Neither do any Liquors flow into the Stomach in order to promote Digestion; but Digestion, that is, the Motion of Chewing, Swallowing, and of the Stomach, are the Cause why these Liquors are press'd out, and that they drain into the Stomach: For that those Liquors contribute nothing farther to Digestion than by softening the Food, is manifest from hence, that if Herbs or Meat be mixed with them in any convenient warm Place as warm as the Stomach, but without Motion, they will never be changed into *Chyle*; so that it is surprizing that any should ascribe to the Serum of the Blood, as it is excerned by the Glands, a Faculty of changing solid Meats into the Form of *Chyle*, when it is evident that Serum is not a fit * *Menstruum* for the Solution of Bread, Meat, or Herbs. But this whole Affair will be much better understood from considering *Boyle's Machine* for Digestion, wherein, without the Help of any Ferment, but by the Assistance only of Warmth, and the Pressure of rarefy'd *Air* confined, Bones and Flesh, with the Addition of a small Portion of Water, are turned into a Jelly; where nothing is wanting to its being made real *Chyle*, but the rough Superficies of a Body to grind and often shake it about.

The

* All Liquors are so call'd which are used as Dissolvents to extract the Virtues of Ingredients by Distillation, Infusion, Decoction, &c.

The *Chyle* being thus made, washes over the *Pylorus* into the intestinal Tube, where, by its peristaltic Motion*, and by the Pressure of the *Diaphragma*, and the Muscles of the *Abdomen*†, the thinner Parts are strained through the narrow Orifices of the *Lacteal* Veins, while the grosser Parts continue their Progress downwards until they are quite ejected by Stool. What passes through the *Lacteals* is carried by them into the Glands of the *Mesentery*‡, where they receive a fine thin *Lymph* from the || *Lymphaticks*, whereby the *Chyle* is diluted so as to pass easier the rest of its Course: For beyond the first Glands they unite in larger Canals, and those in still larger, until at last it enters the common Receptacle of the *Chyle*, which is a kind of Basin form'd for it by the Union of the *Lacteal* and *Lymphatick* Vessels. From thence it ascends thro' the *Thoracick* § Duct, and is thence discharged into the Blood in the left Subclavian Vein, and therewith descends into the right Ventricle of the Heart, where it is but imperfectly

The second Stage of Digestion.

* Alternate Motion of Contraction and Dilatation, commonly tending downwards.

† The Belly, which contains the Stomach, Guts, Liver, Spleen and Bladder.

‡ A membranous Part in the lower Belly, to which the Guts are connected.

|| Are slender pellucid Tubes arising in all Parts of the Body, which permit a thin transparent Liquor to pass through towards the Heart, which shut like Flood-Gates upon its returning.

§ A Canal through which the *Chyle* passeth from the *Lacteals* into the Blood.

ly mixed; and in its Passage it receives the *Lympha* from all the upper Parts of the Body.

But here I must observe, that the most subtil Parts of the *Chyle* pass immediately into the Blood by the Absorbent * Vessels of the Intestines, which discharge their Contents into the *Mesaraick Veins*, the Largeness and Number of which demonstrate the same, for they are numerous and vastly larger than their correspondent Arteries; and wherever there are † Emissaries, there are likewise Absorbent Vessels: for Example, by the Absorbent Vessels of the Skin, *Mercury* will pass into the Blood. But Mr. *Hale's* ‡ Experiment proves this beyond dispute; and if we consider the Straitness of the *Thoracick Duct*, and the Slowness of the Passage of the *Chyle* by the *Lacteals* thro' it, and at the same time the great Quantity of some Liquors and several other Things, which pass in a very small Time by Urine, and give it a Flavour and Taste; by an easy Calculation we may be able to demonstrate, that such a Quantity could not pass into the Blood by the *Thoracick Duct* in so short a Time.

For which Reason, thin and liquid Aliments are most proper, when immediate Refreshment is requir'd, to cheer up the Spirits after great Abstinence and Fatigue; and the same

* Which suck in.

† Vessels which throw out a Liquid.

‡ *Hæmaph.* Pag. 123. Exp. 14.

same Reason may be likewise given, why Chalybeat Waters are a proper Remedy in Hypochondrical Disorders, and in most Obstructions in the *Mesenterick* Glands, Liver, and Spleen; for their subtle Parts are taken immediately into the *Mesaraick* Vessels, and from thence carried directly into the Liver and Spleen.

The *Chyle* first mixes with the Blood in the left Subclavian Vein, as I have already mentioned, and enters with it into the right Ventricle of the Heart, where they are very imperfectly mixed; from thence they are propelled * into the Lungs, which are the chief and first Instrument of Sanguification, or making Blood: For the Wind-pipe is divided into a great Number of Branches, call'd *Bronchia*, and these end in small *Air-Bladders* dilatible and contractible, which are capable to be inflated by the Admission of Air, and subside at the Expulsion of it. The Pulmonary Artery and Vein pass along the Surfaces of these *Air-Bladders* in an infinite Number of Ramifications or Branchings, like a Net-work †. A great Number of those *Air-Bladders* form what are call'd *Lobuli*, which hang upon the *Bronchia* like Bunches of Grapes upon a Stalk; and these *Lobuli* constitute the Lobes of the Lungs, which always sink in Water before they have been in-

* Driven forwards.

† *Malpigh. de Pulmon. Epist. 1, 2. Tab. 1. Fig. 1, 2, 3.*

inflated with Air, but after it has once entered them, they will always swim in it; by which Means we may know whether Children are born dead or alive.

The crude Mixture of the Blood and *Chyle* passes from the right Ventricle of the Heart, through all the Ramifications of the Pulmonary Artery; and the more Ramifications there are, the Mixture will still be render'd the more perfect; yet this is not all, for as this Mixture of the Blood and *Chyle* passes through the arterial Branches, it is press'd by two contrary Forces; first, that of the Heart driving it forward against the Tubes; secondly, the Elastick Force of the Air pressing it on the opposite Side of those *Air-Bladders*, along the Surface of which this arterial Tube creeps.

By these two opposite Forces the Parts of the Liquor are more intimately mix'd and compress'd together, and by the Ingress and Egress of the Air the Vessels are alternately compress'd and dilated, by which Means the Liquor is still farther attenuated, dissolv'd, mixed, and almost assimilated with the Blood, but not so perfectly as to serve the animal Purposes; for it is very well known by Experiments of Blood-letting, that sometimes eight Hours after eating, some of the *Chyle* remain'd unmixed with the Blood, swimming a-top like an oily Substance.

The wonderful Mechanism of Nature in converting our Aliment into animal Substances,

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stances, consists principally in two Things; first, in mixing constantly with it animal Juices already prepar'd; and secondly, in the Action of the solid Parts, as it were churning them together. This is evident, considering the vast Quantity of *Saliva* * mix'd with the Aliment in chewing, the Liquor of the Stomach, the *Bile* †, and *Pancreatick* Juice ‡, the Quantity of the *Lymph* § from the *Mesenterick* Glands, and from the *Lymphatick* Vessels of the whole Body; so that the Juices of an animal Body are as it were new distill'd, being excreted out of their respective

* *Saliva* or Spittle, is a thin Liquor secreted immediately from the arterial Blood: it is of a soapy Nature, and consequently is attenuating, resolving, penetrating, and cleansing, being composed of Salt, Oil, Water, and Spirit, all which can be extracted from it. Too great a Discharge of it by smoaking or chewing of Tobacco has often prov'd fatal to People of thin Habits of Body, by falling into Decays.

† *Bile* or Gall is of two Sorts; the Cystick, or that contain'd in the Gall-Bladder, and the Hepatick, which flows immediately from the Liver. The Cystick Gall is thick, of a yellow Colour, and intensely bitter. The Hepatick Gall is more fluid, and not so bitter; both Sorts are saponaceous, and like Soap, take out Spots from Wool or Silk. Its Use is to sheath or blunt the Acids of the *Chyle* descending from the Stomach into the Intestines; likewise it is the principal Dissolvent of the Aliment, and when it is peccant or deficient, there can be no right Digestion.

‡ Is an Humour like the *Saliva* or Spittle, secreted from a conglomerate Gland called the *Pancreas* or Sweet-bread, situated at the bottom of the Stomach, and lies across the Belly, reaching from the Liver to the Spleen, separating about a Pound of Liquor in 12 Hours. Its Use is to dilute the Gall, and to temper its Bitterness and Acrimony after it has done its Office, and likewise to dilute the *Chyle*, with other Liquors in the Guts.

§ *Lymph* is the most spirituous and elaborated Part of the Blood, continually flowing from the lymphatick Vessels.

respective Glands and Vessels, and admitted again into the Blood with the fresh Aliment: during which time the solid Parts act upon the Mixture of Aliment and animal Juices, in order to make the Mixture still more intimate and compleat; so that we may compute that our Aliment, before it gets into the Blood, is mix'd probably with four times the Quantity of animal Juices.

From whence we may conclude, that an Animal whose Juices are unsound, or solid Parts weak, can never be duly nourish'd; for unsound Juices can never duly repair the Fluids and Solids of an animal Body, and without a due Action of the solid Parts, they can never be well mixed; and as the Stomach, the Intestines, the Muscles of the lower Belly, all act upon the Aliment: Besides, as the *Chyle* is not suck'd, but squeez'd into the Mouths of the *Lacteals*, by the Action of the Fibres of the Guts, it is evident, that the *Chyle* is peccant in Quantity or Quality, when these Actions and Organs are too weak; and whatever strengthens the Solids, must help Digestion.

Hence it appears, that *Diarrhæas* and strong Purgings must spoil the first Digestion, because of the great Quantities of animal Fluids which are thereby expell'd the Body, such as, the *Saliva*, *Mucus* *, and all the
Liquors

* *Mucus*, is that slimy Liquor or Moisture, which daubs over and guards the Bowels, and all the chief Passages in the Body; and it is separated by the mucilaginous Glands in most Parts of the Body.

Liquors that are separated in the Glands of the alimentary Duct †, both Sorts of Gall, the *Pancreatic* Juice, *Lymph*, and sometimes Blood. Considering therefore the Quantity of these Secretions, it will plainly appear, that almost the whole Juices may be carried off by purging; and when those Liquors, destin'd by Nature to mix and convert the Aliment into an animal Liquid, are expell'd out of the Body, the Digestion cannot be so well perform'd. Hence follow Consumptions, Dropsies, and often an Obstruction of the Mesenterick Glands, which is a great Impediment to Nutrition; for the *Lymph* in those Glands is a necessary Constituent of the Aliment before it mixes with the Blood.

The Mixture of the Blood and *The last Stage*
Chyle, after its Circulation thro' *of Digestion.*
the Lungs by the pulmonary Arteries, being brought back into the left Ventricle of the Heart, is thence, by the Force of the Heart, drove into the *Aorta* || quite thro' the whole
L Body:

† The whole Passage from the Mouth to the Fundament.

|| *Aorta*, is the great Artery which proceeds from the left Ventricle of the Heart, and carries the Blood thro' the Body, and every Particle of the Body receives some Branch from it; except some of the solid Parts of the Liver, which receive the Blood from the *Vena Portæ*. The Arteries are elastick Channels or Tubes, endued with a contractile Force, by which they drive the Blood still forward, it being hinder'd to go backward by the Valves of the Heart. They are also conical Vessels, that is, tapering and diminishing by Degrees, with their Bases or upper and broader Part towards the Heart; and as they pass on, their Diameters grow still less and less, and consequently the Celerity of the Motion diminishes by the Increase of the Friction of the Fluid against the Sides of
the

Body : and thus the Aliment, circulating thro' the animal Body, is at last reduc'd almost to an imperceptible *Tenuity* or Thinness, before it can serve the animal Purposes, in nourishing both the Fluids and Solids ; and after various Circulations, and when it is depriv'd of all that can be of farther Use to any Part of the Body, it is carried off, both sensibly and insensibly, by the *Emunctories* * of the Body. But for farther Satisfaction concerning *Nutrition*, Growth, and Decrease of the Body, turn to Part I. Page 19, to 28.

By the foregoing Doctrine it is evident, that Acrimony and Tenacity or Glewiness, are the two Qualities in what we take inwardly most to be avoided ; for Acrimony or Sharpness destroys the capillary Vessels, and when it is so great as to affect the solid Parts, the Sensation of Pain is intolerable.

As

the Tubes ; and without this Motion, both the Blood and Chyle would soon be converted into one solid Mass ; but on the contrary, by its Continuance, the Fluid being compressed by the Sides of the Tube, especially in the small Vessels, where the Points of Contact are more, the Blood and Chyle are still more intimately mix'd, and by Friction attenuated ; by which means the Mixture acquires a greater Degree of Fluidity and Similitude of Parts. Hence appears the Necessity of Exercise to promote a good Digestion, And the Strength of the Aliment ought to be proportion'd to the Strength of the solid Parts of the Body ; for as Animals that use a great deal of Labour and Exercise, have their solid Parts more elastick and strong, they can bear, and ought to have stronger Food, too thin Nourishment being quickly dissipated by the vigorous Action of the solid Parts.

* Are those Parts of the Body where any thing excrementitious is seperated, and collected to be in readiness to be ejected.

As to the Viscidity or Glewiness of what is taken inwardly, when the peristaltick Motion of the Guts is so weak, as not to be able to propel or drive it forward, the Consequence is dangerous, and often fatal to the Life of the Individual; for when the Tenacity of any Substance exceeds the Powers of Digestion, it will neither pass, nor be converted into Aliment; whereas hard Substances will pass undissolv'd. Moreover, the Mouths of the *Lacteals* in People of weak and lax Constitutions may permit Aliment too acrimonious, or not sufficiently attenuated, to enter; but the *Sphincters* † in such as have strong Fibres will shut against them.

Besides, a viscid *Mucus* may shut up the Mouths of the *Lacteals*, by which means the *Chyle* will pass by Stool, and the Person falls into an *Atrophy* or Decay of Flesh. Wind with Distention of the Bowels are Signs of bad Digestion in the Intestines, and likewise Diarrhœas, which proceed from Acrimony, Laxity of the Bowels, or Obstructions of the *Lacteals*.

Those Parts of the Body where the Circulation of the Fluids, and the elastick Force of the Fibres are both smallest, must be most subject to Obstructions; and such are the Glands, which are the Extremities of Arte-

L 2

ries

† *Sphincter*, is a Name ascrib'd to such Muscles as draw up, strengthen, and keep shut the Parts, such as the Sphincter of the Bladder, Womb, Anus, &c.

ries form'd into cylindrical ‡ Vessels. Hence we may easily perceive, that too solid or viscid Aliment must be very hurtful to scrophulous and consumptive Persons.

Having endeavour'd to give the Reader an Idea of animal Digestion, by shewing how our Aliment is converted into animal Substance, in as succinct a manner as could be in so narrow a Compass: I shall now proceed in the same manner to give an Account of the Choice of them, that what is either beneficial or hurtful may be easily seen, according to the Nature and Difference of Constitutions.



C H A P. VI.

Of the Choice of ALIMENTS.

AS all Animals are made either immediately or mediately of Vegetables §, that is, by feeding on them, or on Animals that are fed on Vegetables: I shall therefore begin with the Vegetable Kind.

Vegetables

‡ Cylindrical, in Anatomy, signifies Vessels that are so shaped, as not to be narrower at one End than another, but that all their Parts are equally distant in all Places from their Center; or which is the same thing, that they are of the same Diameter in all Places, contrary to conical Vessels, which are tapering and growing narrower.

§ Vegetables are such natural Bodies as grow and increase from Parts organically form'd, as Trees, Plants, and Roots, &c. but have no proper Life or Sensation.

Vegetables are proper Food enough to repair Animals, as they consist of the same Parts with animal Substances, such as Salt, Oil, Spirit, Water, and Earth, all which are contain'd in them, and may be extracted from them. Their Salts are capable of resolving the coagulated Humors of a human Body; and of attenuating, by stimulating the Solids, and dissolving the Fluids: Salts likewise promote Secretion. Oils also relax the Fibres, and are Lenient, Balsamick, and abate Acrimony in the Blood; and by Virtue of this Oil, Vegetables are nutrimental; for this Oil is extracted by animal Digestion, as an Emulsion from Seeds by a Pestle and Mortar. But *Aromatick* Plants, tho' they abound with Oil, yet it is not soft and nutritious, and when mix'd with a Spirit, is too heating.

Tastes are Indexes or Marks of the different Qualities of all Sorts of Aliment; and different Tastes proceed from different Mixtures of Salt, Oil, Water, and Earth, but principally from the Spirit and Oil, mix'd with some Salt of a particular Nature. A *Muriatick* or briny Taste, is produc'd by a Mixture of an acid and alkaline Salt; for Spirit of Salt being an Acid, and Salt of Tartar, which is an *Alkali* * when they are

L 3

mix'd,

* The Word *Alkali* comes from an Herb called by the *Egyptians Kali*. This Herb they burnt to Ashes, and boiled them in Water, and after having evaporated the Water, there remain'd a white Salt, which they called *Alkali*. It is corrosive, and will produce Putrefaction if apply'd to the Flesh,
and

mix'd, produce a Salt like Sea-Salt, bitter and acrid, differing only by the sharp Particles of the first being intangled or involv'd in a greater Quantity of Oil than those of the last.

Acid or sour, proceeds from a Salt of the same Nature without a Mixture of Oil; and in austere Tastes, the oily Particles have not disentangl'd themselves from the Salts and earthy Parts, for such is the Tastes of unripe Fruits. In sweet Tastes, the acid Particles are so attenuated and dissolv'd in the Oil, as to produce only a small and grateful Sensation and Titillation; but in oily Tastes, the Salts seem to be entirely disintangled. As Vegetables contain acid or alkaline Salts, so they produce different Effects upon human Bodies, and are to be used according to the different Constitution of the Body at that time, as will appear by what I shall say hereafter.

The properest Food of the vegetable Kingdom that Mankind make Use of, is taken from the mealy Seeds of some *culmiferous* or Stalk-bearing Plants, as *Barley, Wheat, Oats, Rice, Rye, Mays, Panick, and Millet*; or from some of the *Pulse* or Leguminous Kind, such as *Pease and Beans, &c.* and as those are Seeds containing the most elaborate Part of

and ferments with Acids, as all lixivate Salts will do, which are Anti-acids, that is, contrary to Acidity.

As for acid or sour Salts, one has a Notion of from Taste, Sourness being one of those simple *Ideas* which one cannot more plainly describe; so that whatever being mix'd with an Acid, causes an Effervescence or Ebullition, is called *Alkali*.

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of the Plant, they are oily, and consequently proper to be converted readily into an animal Emulsion or *Chyle*: Besides, their Oil is not highly exalted and hot, as that of the aromatical and acrid Plants, but on the contrary, mild, benign, and nourishing to the human Body.

Barley is detergent, emollient, and expectorating, and it was first chosen by *Hippocrates* as proper Food in inflammatory Diseases.

Wheat is the properest of any Grain for Bread, which, if not entirely purg'd from the Bran, is laxative and stimulating to the Bowels.

Oats are cleansing, resolving and pectoral, which being outwardly apply'd mix'd with Butter, will dry Scabs on the Head.

Rice, which two thirds of Mankind perhaps feed on, is most kindly nourishing and benign, good in Hæmorrhages, or Fluxes of Blood, and proper for consumptive Persons; but the Bread made of it is more acid and less nourishing than that of Wheat.

Rye is more acid, laxative, and less nourishing than Wheat.

Millet is cleansing, diuretic, and therefore good in Distempers of the Kidneys.

Panick is opening, and boil'd with Milk temperates Acrimony.

Mays affords strong Nourishment, but not being so easily brought to a Fermentation as other Grains, is more viscous or glewy, and

consequently harder to digest. All the fore-mention'd Plants are highly *Acescent* †, except Pease and Beans.

Pease are mild, and demulcent in a great Degree, being depriv'd of all aromatick Parts. Green Pease are very pleasant to the Taste, and provoke Appetite; but they are injurious to many, being full of aërial Particles, creating Flatulency when dissolv'd by Digestion. They are *alkalescent* §.

Beans cleanse and fatten, and resemble Pease in most of their Qualities, but are more windy, and occasion sometimes Colic Pains, and disturb the Head. The *French* or Kidney-Beans are best, being less windy. People that live a sedentary Life should not feed much upon Pease or Beans, by reason of their Viscosity creating too much Flatulency.

The mealy Parts of the above-mention'd Plants dissolv'd in Water for constant Food, is too viscid an Aliment, and for that Reason justly condemn'd by *Hippocrates*; and upon that Account, Mankind have found the means to make them more easy of Digestion, by fermenting and making some of them into Bread, which is the lightest and properest
for

† See Note following.

§ Substances which are not perfectly Acid, but naturally turn so, are called *Acescent*; and Substances that are not perfectly Alkaline, but naturally turn so, are called *Alkalescent*. See the Explanation of *Alkali* in Note *, p. 165.

These two Qualities in Bodies are not merely imaginary, but have very different and contrary Effects upon human Bodies.

for human Food; for the *Leaven*, by its acid Salt, divides the slimy and oily Parts of the Meal.

The next Sort of vegetable Substances that Mankind feed upon, are Fruits of Trees and Shrubs: They all contain an essential Salt, combin'd with Earth, Water, and Oil, much elaborated; and their different Qualities are known by their sharp, sweet, sour, or styptic Taste.

Apples are pectoral, cooling, laxative, and open the Breast; they differ considerably in Kind, and their Qualities are easily known by their Taste.

Pears have most of the same Qualities, but they are more cordial, by their high Flavour, than Apples.

Peaches are likewise cordial and pectoral; the best are those that are odoriferous, well colour'd, and full ripe.

Apricocks quench Thirst, excite Appetite, provoke Urine; their Kernels are good against Worms, and excellent for the Heart-burning: unless they are mellow and full ripe, they are rather somewhat styptick.

Plumbs purge Choler, extinguish Heat, take away Thirst in Fevers; but they are bad for weak and cold Stomachs, and for phlegmatic Persons, and such as are subject to Colics. Those of the austere Kind are astringent.

Mulberries are pectoral, and correct a bilious *Alkali*.

Gooseberries

Gooseberries extreamly ripe are lenient; but unripe, they are both sour and astringent.

Currants are good in spitting of Blood, extreamly cooling, and somewhat astringent. The Jelly or Rob of Currants mix'd with Water, is an excellent Drink in bilious Fevers.

Cherries are cooling and laxative, and their Kernels are good for the Gravel in the Kidneys.

Strawberries, by their fragrant Smell are Cordial. Their Juice mix'd with that of Limons in Spring-Water is an admirable Drink in bilious Fevers.

Oranges that are sweet are more relaxing than the *Seville Oranges*; but these last are an excellent Remedy for the hot Scurvy. The sweet Oranges increase Choler.

Citrons or *Limons* excite Appetite, stop Vomiting, cut gross Humours, are good in Fevers, and their Juices are more cooling and astringent than those of Oranges.

Grapes taken in moderate Quantities when ripe, help the Appetite and Digestion; but in great Quantities, they dissolve the Gall too much, and produce Fluxes; and dry'd they are pectoral.

Figs are great Correctors of Acrimony, they are good in Coughs and Hoarseness; they are likewise extremely emollient, relaxing the urinary Passages, diuretick, and good in bloody Urine.

Quinces

Quinces are often useful to weak Stomachs, and good in stopping Fluxes of Blood.

Pomegranates likewise, containing an astringent Juice, are extremely cooling.

Barberries and *Medlars* are useful in Bloody-Fluxes.

Tamarinds are cooling and astringent, yet laxative to the lower Belly.

Capers are astringent and diuretick; they excite the Appetite, and are good for phlegmatic and melancholy People.

Olives are Anti-acids, or contrary to Acidity by their Oil; but all oily Substances beget an Acrimony of another Sort.

Almonds are pectoral, especially the Oil.

Walnuts are cordial and Anti-hysteric, and promote Perspiration in a small Degree.

Hazle-Nuts are in some Degree good against spitting of Blood; but they are very hard to be digested, they cause Wind, Coughs, and Pains in the Head.

Chestnuts are good against some Female Weaknesses, and afford very good Nourishment.

There are other Fruits of the low pomiferous Kind, which contain a great deal of cooling and viscid Juice, combin'd with a nitrous Salt, which renders them often offensive to the Stomach; and such are *Pompions*, *Cucumbers*, *Gourds*, and *Melons*; tho' the last, when good, have a rich Juice, and somewhat aromatick; they are diuretick, and there are Instances when eaten in great Quantities,

tities, to have thrown People into bloody Urine: they are likewise cooling and refreshing, good for hot Stomachs, and the Kidneys; they ought to be taken fasting. The Juice of Cucumbers is too cold for weak Stomachs, and ought not to be taken by such as have thin and poor Blood.

Among the alimentary Leaves, the *Pot-Herbs* afford an excellent Nourishment: Of those are all the *Cole* or *Cabbage* Kind, which are emollient, laxative, and resolvent, and for that Reason proper against Acidity. There are likewise amongst the *Pot-Herbs* some * Lactescent Plants, as *Lettuce*, *Endive*, *Cichory*, and *Dandelion*, which contain a milky Juice extremely wholesome, resolvent of the *Bile*, anodyne, cooling and diuretick, and very useful in the Distempers of the Liver.

Artichokes are pleasant to the Taste, provoke Urine, and contain a rich, nutritious and stimulating Juice; they are good against Acidity.

Asparagus is opening and diuretic; by the foetid Smell it gives the Urine, it is suspected to be hurtful to the Kidneys; it is likewise good against Acidity.

Parsley provokes Urine, the Courses, cleanses the Kidneys, and removes Obstruction and Wind; but it is bad in Bloody-Fluxes.

Celery contains a pungent Salt and Oil; it is diuretick and aperient, and exceeding good for cold Constitutions.

Spinage

* Vegetables containing a milky Juice.

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Spinage is emollient or opening, good in Inflammations.

Beet is emollient, nutritive, and relaxing, good in hot and bilious Constitutions.

Sallads of all Sorts, mix'd with sweet Oil and Vinegar, are good for hot and strong Constitutions; because they are cooling, diuretick, and emollient; but they are not proper for phlegmatick or weak Constitutions, or those that are subject to Colics or Indigestion.

Of the alimentary Roots, some are pulpy, and very nutritious; as *Potatoes*, *Turnips*, and *Carrots*, &c.

Potatoes, of all Roots in general, are the best and most nourishing for healthy People, and there are Instances enough to prove the same both in *Ireland*, and in other Provinces, where two Thirds of the Husbandmen, and meaner Sort of People, constantly feed upon them, and are the principal Part of their Food; yet they are healthy, active, and vigorous, and for the most Part live long.

Turnips are very nutritious, good in Consumptions, Asthmas, and all Diseases of the Breast; they are emollient and diuretick.

Carrots are fattening, they provoke Urine, and the *Menses*, and likewise help to open Obstructions; but they are windy, and therefore not proper for colicky or weak Stomachs.

Parnisp is a very nourishing and palatable Root; it fattens, and is a Provocative; it opens,

opens, attenuates, and cleanses; but it is hard to digest, and not good for asthmatick and consumptive People.

There are other Roots which abound with an acrid, volatile Salt; as *Garlick*, *Onion*, *Rockambole*, *Shalot*, *Leeks*, *Radishes*, and *Horse-radishes*: They contain a pungent, volatile Salt and Oil; they are extremely diuretick, and when stimulating Diureticks can be safely used, they are very effectual.

Experience teaches, that *Garlick* is a very excellent Remedy in *Dropsies*, *Jaundices*, and in *Asthmas* proceeding from a cold and viscid Phlegm.

Cresses and *Mustard* contain likewise, in their Degrees, a pungent Salt and Oil, as well as the last mention'd Roots; and as all of them subdue Acidity, they are very improper in Cases where the Blood is too much dissolved, as in spitting of Blood, and bloody Urine, or where the Blood or Juices have a Tendency to a State of *alkaline* Putrefaction; and in general they are fitter for cold Constitutions and old People, than for the young and sanguine. *Mustard* indeed is a very powerful Remedy in viscid and cold phlegmatick Cases.

The Fungous Kind, as *Truffles*, *Morelles* and *Mushrooms*, contain an *Alkaline* volatile Salt, and an exalted Oil of a grateful Savour; but are heating, and the best Method of correcting them is by Vinegar: Some of them being poisonous, render the rest justly suspicious;

cious; the poisonous Sort operate in a suffocating Manner, in which Case the best Remedy is Wine, or Vinegar and Salt, and vomiting as soon as possible.

There are Vegetables used by Mankind in Seasonings, which afford an exalted aromattick Oil, and of a spicy Nature, as *Marjorum*, *Basil*, *Savory*, *Thyme*, *Rosemary*, *Sage* and *Mint*: They are heating, and most of them hard to digest: Other Spices of a more powerful Nature, as *Nutmeg*, *Mace*, *Cinnamon*, *Cloves*, *Ginger* and *Pepper*, abound with a high exalted Oil and volatile Salt, by which Principles they are heating, and act powerfully upon the Fluids and Solids, by stimulating the Solids and resolving glutinous and fat Substances: They are all proper in phlegmatick cold Constitutions. But *Sage* being a stimulating, drying, and astringent Plant, when used in great Quantities will produce Disorders like Drunkenness; therefore the Infusion or Tea made of it is very improper in all inflammatory Fevers as a Diluter.

As the Infusions and Decoctions of *Tea*, *Coffee* and *Chocolate* make so considerable a Part of Aliment at present, especially among the Female Sex, it will not be improper to say something of their Qualities in particular.

Of *Tea*, *Coffee*,
and *Chocolate*.

Tea, by its Manner of affecting the Organs of Taste and Smell, affords very little of a volatile Spirit; its bitter and astringent Rosin or fix'd Oil cannot be extracted by Water, but requires

requires rectify'd Spirit of Wine for that Purpose. The most active Principles of it that can be extracted by Infusion are the most separable Parts of its Oil or Gum, and Salt. Its Salt and Gum are astringent, as appears by mixing it with Chalybeat-Waters, which will produce a Tincture of the same Colour as that of Oak-leaves; it is **Acescent*, as appears by its affecting Stomachs troubled with Acidity, which Disorder it will rather promote than correct: By its astringent Quality it moderately helps to correct the relaxing Quality of the warm Water; and by its styptick and stimulating Quality, it affects the Nerves, very often producing Tremors. By the frequent drinking too great Quantities of it, as is now become a common Practice, it will relax and weaken the Tone of the Stomach; from whence proceed an Inappetency, Nausea, Reachings or Vomitings, Indigestion and Sicknefs at the Stomach; and generally speaking, a pale and wan Complexion, with a Weakness of the Nerves and Flabbiness of the Flesh, the Solids and Fluids being thereby deprived of their proper Nourishment.

Hence we may easily perceive, how pernicious Tea-drinking may prove to the *Sedentary*, especially the Female Sex, who for the Generality have weak and tender Nerves; but as Milk abates some of the fore-mentioned bad Qualities, by rendering it softer and nutritious, and Sugar as a Salt, encreases its stimulating

* See Note §, Page 168.

lating Quality, it may be a proper Breakfast enough, as a *Diluent*, to those who are strong, and live full and free, in order to cleanse the alimentary Passages, and wash off the scorbutick and urinous Salts from the Kidneys and Bladder. But Persons of weak and tender Nerves, as I have just now observ'd, ought carefully to avoid and abstain from it, as from *Drams* and cordial *Drops*; for such fall into Lowness, Trembling and Vapours, upon using it with any Freedom, by its Irritation on the tender and delicate Fibres of the Stomach*.

As to *Coffee*, it is a meer *Calx*, or a kind of burnt Horse-Bean, but lighter on the Stomach and somewhat of a better Flavour; and what is extracted from it by hot Water, is the most separable Parts of its Oil, which often appears at the Top of the Decoction. This Oil is volatile, and affords very little Nourishment, producing all the bad Effects of a volatile Oil and aromatic Acrimony, such as Heat, Dryness, Stimulation, Tremors of the Nerves; for which Reason, it has been deem'd to cause Palsies, Watchfulness, Leanness, and destroy masculine Vigour: Hence it is very plain, that it must be pernicious to hot, dry, and bilious Constitutions, and only beneficial to Phlegmaticks, if moderately us'd; but when drank in too great a Degree of Strength or

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* For further Satisfaction herein, see Dr. Thomas Short's learned and elaborate Dissertation upon *Tea*, in which the Author has not only given us the Natural History of the Plant, but likewise its Analysis, with great Skill and Industry.

Quantity, it will prove destructive even to phlegmatick Constitutions.

Chocolate is undoubtedly much the best of the three; for its Oil appears to be both rich, nutritious and anodyne*, and is as soft as that of Sweet-Almonds: This Oil combin'd with its own Salt and Sugar renders it *saponaceous*† and detergent; by this Quality it often helps Digestion and excites the Appetite; and is only proper for some of the leaner and stronger Sort of phlegmatick Constitutions, and some ancient healthy People, who are accusom'd to bodily Exercise.

There are other Preparations of Vegetables by Fermentation, whereby they are changed into spirituous Liquors, which are, or may be called by the general Name of Wines: Such fermented Liquors have different Qualities from the Plants that produce them; for no Fruit taken crude has the intoxicating Quality of Wine. Of these Liquors I shall take particular Notice, after I have given the Reader a short Account of the Nature of animal Diet, as far as it regards the Nourishment of Human Bodies.

Animal Food is more easily converted into animal Substance than Vegetables; and therefore more nourishing to human Bodies: And the

† Easing, or taking away Pain.

‡ Sope is a Mixture of Oil and fix'd alkaline Salt, and in common Use its Virtues are cleansing, penetrating, attenuating, and resolving; so that any Mixture of an oily Substance with Salt may be call'd a Sope; hence Bodies of this Nature are call'd *Saponaceous*.

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the Nature of Animal Diet must depend upon the *Nature, Age, Food*, and other Circumstances of the Animal we feed upon.

The Animal as well as Vegetable Juices are in their greatest Perfection, when the Animal is full grown; for young Animals partake of the Nature of their tender Food, as *Sucklings* of Milk, &c.

All Animal Diet in general is *anti-acid*, or contrary to Acidity or Sourness; because no sound Animal has any acid Salt in it, as has been often prov'd by Experiments. Those Animals that feed upon other Animals have their Flesh and Juices more *alkalescent*, that is, more *anti-acid* than those that live upon Vegetables; such are most Fishes, all Birds which feed upon Worms and Insects, several kinds of Water-Fowls, Woodcocks, Snipes, and several kinds of small Birds; which, for that Reason, afford a more exalted Nourishment than those that feed upon Grain or other Vegetables.

Animal Flesh differs according as the Animal is *terrestrial, aquatick, or amphibious*; and the same Species of Animals differs according to the Soil and Air it lives in, and the Food which it takes; as those that live in Mountains and Marshes; the Flesh of Oxen, Sheep, Deer, and Hogs in different Pasturage.

Fishes abound more with *alkaline* Salt and Oil than terrestrial Animals; for which Reason they are sooner corrupted: And *amphibious* Animals partake somewhat of their Na-

ture by feeding upon them, and are therefore oily; and notwithstanding the Redundancy of Oil in Fishes, yet they do not increase Fat so much as Flesh-meat, by Reason of their watery Quality; and as Fish and Water-Fowls are highly *alkalescent*, and abound with a great deal of rancid Oil, they should be always qualified by a due Quantity of Salt and Vinegar.

The most healthy Animals afford the best Aliment, and the Castrated are better than those that are not so; and the only Way of having sound and healthful animal Food, is to leave them to their own natural Liberty in the free and open Air, and in their own proper Element, with Plenty of Food and due Cleanness, and a Shelter from the Inclemency of the Weather when they have a Mind to retire to it. Therefore we should never make Choice of cramm'd Poultry, or stall-fed Butcher's Meat for our Food, did we consider the foul, gross, and filthy Manner in which they are confin'd, and the stinking, putrid, and unwholesome Food with which they are fed, especially Poultry and Hogs: for we may be well assured, that perpetual Foulness and Cramming, gross Food and Filthiness will rot the Juices, and mortify the muscular Substance of human Creatures, and consequently can do no less in Brute Animals, and thus make even our Food Poison. Besides, stall-fed Cattle and cramm'd Fowls are often diseas'd in their Livers. The same may be likewise said

said of Plants and Vegetables, forc'd and produced by Hot-beds.

Animals, Herbs, Fruits and Corn are to be chosen in high Places, such as are refresh'd with wholesome Winds and cherish'd with the warm Beams of the Sun, and where there are no Marshes, Lakes, and standing Waters; for in such Places they are quickly corrupted; and likewise the Flesh of all Animals that live in *Fens* and standing Pools are to be avoided, such as Ducks, Geese, &c.

The Flesh of Animals too old is unwholesome, being hard, dry, finewy, and of little Nourishment, and hard to be digested; and on the contrary, such as are too young abound with too much Moisture, and are full of Superfluities, and therefore cannot nourish so well as an Animal full grown, in as much as they partake of the Nature of their tender Food, as I have observ'd already.

Salt Fish produces gross Humours, and bad Juices in the human Body; for it dries much, and breeds many Superfluities, and is of little Nourishment; it occasions Thirst, Hoarseness, Acrimony, or Sharpness in the Blood, and Erosion of the small Fibres, Pains, and all the Symptoms of the *Muriatick* or briny Scurvy, upon account of the Salt, which is unalterable in all the Circulations of the human Body, and therefore very improper Food for all Constitutions, except some strong labouring People, and even in those it will produce very bad Effects, if they feed upon it

for a Constancy, as we see in Sea-faring People. The same may be said of Salt Flesh.

The Flesh of Birds is lighter, drier, and easier digested than that of four-footed Beasts, and for that Reason, more agreeable to those of a studious Profession, who exercise the Mind more than the Body; for as they are more easily digested, so they breed better Blood, that is, clear, clean, and full of Spirits, which is fit for the Exercises of the Mind.

The Flesh of the wild Kind of Animals, such as frequent Woods, high open Places, and Mountains, is better than that of tame ones, having more Exercise and no Confinement, have their Juices more elaborated, and their Flesh will keep longer uncorrupted; because they live in a better Air, and feed upon what they like best without Constraint; for the same Reason their Fibres are harder, especially when old. This Rule in some measure holds true with Fishes; for Sea-fish and River-fish living in an Element more agitated, are better than those in Ponds. For these Reasons *Hippocrates* commends the Flesh of the wild Sow preferable to the tame; and doubtless the Animal is more or less healthy, according to the Air it lives in; for the Flesh of the same Species differs very much, as the Animal lives in Marshes or Mountains.

Flesh boil'd is more wholesome (especially for weak Stomachs) than roasted; for boiling draws more of the rank and strong Juices from
from

from it, and renders it more diluted, lighter, and easier of Digestion, tho' not so nutritive; but on the other hand, roasting leaves it fuller of the strong nutritive Juices, harder to digest, and wanting more Dilution*; therefore those who eat the Flesh of full-grown Animals, ought to eat it well boil'd, if their Digestion is weak. They who live upon young animal Food, which is best for weak Stomachs, ought to eat it roasted, and lessen the Quantity in respect of the same Food boil'd, but they must dilute it more; for as roast Meat has a stronger Flavour, more Nourishment, and lies more compact in the Stomach; so it will require to be more diluted with some small Liquors to soften its more rigid and crisp Fibres.

Meats bak'd, fry'd, and broil'd, generate nauseous Humours and Crudities in the Stomach, and are very difficult to be digested, tho' they are very nourishing.

Lamb, Veal, and Kid, afford excellent Nourishment, and are easy to be digested, and therefore proper Food for those of a *sedentary Life* and studious Professions.

Beef affords great Nourishment to those that labour and exercise much, and generates much Blood; but it is too strong for tender, weak, and *sedentary* People, especially when Stall-fed, and very large; for Grass Beef and

M 4

Mutton

* Dissolving or making thinner any Substance, with the Addition of Fluids or Liquids, which are called *Diluents* or *Diluters*.

Mutton are lighter than Stall-fed Oxen and Sheep.

Mutton breeds good Blood, nourishes exceeding well, and is easily digested; and by Experiment is found the most perspirable of all animal Food, and Hogs-Flesh and Oysters the least.

Rabbits are of a good Nourishment, they consume the superfluous Moisture and Phlegm in the Stomach, and the Flesh is not near so dry as that of a *Hare*, and therefore nourishes better, and is much easier to be digested.

Young Hares are very sweet and pleasant to the Stomach when well dressed, they are good for such as are too fat. It is said, that the Blood of a Hare fry'd and eaten, is good against the Bloody-Flux, inward Impostumations, and the Gravel in the Kidneys; and that the Brains of a roasted Hare cures *Tremors*, and facilitates the breeding of Teeth in Children; but the *Moderns* justly despise such whimsical and groundless Practice.

Pork and *Bacon* afford great Nourishment, but as they feed the foulest of any Creature, and their Juices are the rankest, their Substance is the most surfeiting; and as they are the most subject to † cutaneous Diseases and Putrefaction of any Creature, they are highly injurious to *valetudinary*, *sedentary*, and studious People; for they cause the *Gout* and
Stone

† Diseases of the Skin, such as *Pimples*, *Scabs*, *Mange*, &c.

Stone in Kidneys, Scurvy, and *cutaneous Eruptions*. The Flesh of sucking Pigs is endued with the same bad Qualities, tho' not in so great a Degree.

Brawn made of the Flesh of young *Boars* is tolerable good eating, having not so much Slime and excrementitious Moisture as *Pork*, *Pig*, and *Bacon*; but the hard and horny Part is very difficultly digested.

Deer affords good Nourishment, and is apt to make lean such as are too fat, according to the Observations of some Authors; but I very much doubt the Veracity of such Assertions, for it seems even contradictory to say, that whatever affords good Nourishment, shou'd render corpulent and fat People thin or lean.

Of all the Parts of *Birds* and other *Beasts*, some are better than others; for all the Extremities, as the *Head*, *Neck*, *Feet*, and *Tail*, in respect of the rest, are of a hard, viscid, and gross Nourishment; but the Parts about the *Wings*, *Back* and *Breast*, are better, and more savoury.

Cream, *Butter*, and *Marrow*, are all lenient and nourishing: Marrow is excellent in the dry Scurvy with crackling of the Bones, where it performs its natural Office in moistening them.

Cheese that is new fattens, tastes pleasantly, and is not very injurious to the Stomach, especially Cream-Cheese, which is the best and most wholesome when newly made.
Cheese

Cheese of no kind is good for Children or weak People, for it lies too heavy in the Stomach, is apt to breed Slime and Worms in Children, and it ought to be eaten only after Meals, to close up the Mouth of the Stomach at such times; but too much of it is bad at any time, especially old Cheese, for it occasions Thirst, inflames the Blood, and is often the Cause of the Gravel and Stone in the Kidneys or Bladder; therefore it is only proper for *Mechanics* and labouring People, or those that are strong and healthy, and use much Exercise.

Milk is a most noble, nourishing, and wholesome Food; it is neither *Acid* nor *Alkaline*; but when there is an *Acid* and *Alkali* mix'd in it, they presently manifest themselves by their Fermentation and Conflict. Milk, after standing some Time, naturally separates into an oily Substance called Cream, and a thinner, blue, and more ponderous Liquor called skimm'd Milk, and neither of these Parts is naturally acid or alkaline, nor in the least acrimonious; for being dropp'd into the *Eye*, they cause no manner of Pain or Sensation of Sharpness; but by standing too long, they will turn both sharp and sour. Milk is a kind of Emulsion, or white animal Liquor, resembling *Chyle*, after it has been mixed with the *Spittle*, *Bile*, and *pancreatick* Juices, &c. is easily separated from them again in the *Breasts*.

A Nurse that would abstain from all acid vegetable Food, from Wine, and Malt Liquors, and feed only upon Flesh, and drink Water, her Milk, instead of turning sour, would become *putrid*, and smell like Urine; so that an *alkalescent Diet* †, (as is often the Case of Nurses in great Families) subjects the Child to Fevers; but on the other hand, the Milk of poor People that feed upon an *acescent vegetable Diet*, subjects the Child to Diseases that proceed from Acidity in the Bowels, such as *Colics*, *Gripes*; the Symptoms of such a Constitution are a sour Smell in their Excrements, sour Belchings, Distensions or Swellings of the Bowels, and Paleness of the Flesh.

The Cure of both Diseases is effected by a Change of Diet in the Nurse, that is, from *Alkalescent* to *Acescent*, or contrary ways, as the Case requires. But the best Diet for Nurses is a Mixture of both, and no Nurse should give Suck after twelve Hours fasting; for then her Milk is apt to turn yellow, which is an early Sign of a Fever in the Nurse.

It appears from the fore-mention'd *Qualities*, that Milk is a very proper Diet for human Bodies, especially for thin, hectic, and emaciated

† *Alkalescent Diet* is the Flesh, Broths, and Juices of all Animals, both Terrestrial and Aquatick, which in a sound State have no manner of Acid in them, as is very well known by Experiments.

§ An *Acescent vegetable Diet*, is taken from Plants, Fruits, and their Juices, and all fermented Liquors, which are either actually acid, or naturally turn so.

emaciated People, and where Acrimony in the Blood and Juices is to be subdued or avoided; but it is not proper for those that are troubled with the Colic or Stone, neither is it proper in Obstructions of the Vessels, it being void of all saline Quality.

Whey is good for such as are of a hot Constitution, it quenches Thirst, promotes Sleep, and of all Drinks is the most relaxing, and is a powerful Remedy in the hot Scurvy.

The different Nature of Birds is known by the Time, Age, Food, Place, and Air they live in; because Domestick as well as Wild Fowl, grow lean, and feed little at the Time of their coupling. And some Birds are best in *Spring* or in *Summer*, at which Time they feed upon Corn; others in *Autumn*, because they eat Grapes, Figs, Apples, Berries, and such like. Others again are best in *Winter*, such as Thrushes, Blackbirds, wild Geese, Cranes, and all Water Fowl.

Some live on Worms, Insects, and Fish, as Woodcocks, Snipes, &c. but most feed on Grain, as Pigeons, Doves, and all Domestick Fowls, and the like: Some are nourish'd on Land, others in Rivers, Lakes, and in the Sea, and a great many Birds feed upon Herbs; and it is very remarkable, that the Flesh of wild Fowl has always the Taste of such Things as they feed on, as Fish, Slime, Mud, Worms, and other Insects.

Mountain Fowls are always preferable to the rest; besides, castrating or cutting a Fowl, renders

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renders it fat and sweet, as appears in the Flesh of Capons; and the Flesh of young Birds is always better than that of old ones.

Duck is the hottest of all tame Fowl; the Wings and Liver are the best, but of hard Digestion, and gross Nourishment; it is good in cold Weather for strong Stomachs, and such as labour much.

Capon nourishes better than all other tame Fowl, and breeds good Blood and Juices in the human Body.

Pigeons afford good Nourishment; they are very hot, and therefore only proper for old and phlegmatic People, or such as labour much, who generally speaking, will digest any Food without any Trouble or much Danger.

Pheasants are very agreeable to human Nature; they comfort and strengthen the Stomach, afford great Nourishment, and fatten very much.

Pullets nourish exceeding well, are easily digested, and generate good Blood and sound Juices; but old Hens are dry, hard to be digested, and afford little Nourishment; and the Flesh of a *Cock* is drier, hot, and sulphurous, and therefore very improper Food for any Body, and fit for nothing else than to make Broth of it, with a little Mutton, Veal, or both.

Geese, especially the young *Geese*, afford good Nourishment; but old ones, that feed and live in Fenny Places, are coarse, and
hard

hard to be digested, and not fit Food for tender People, or weak Stomachs.

Turkey is good Food, and affords good Nourishment, but harder to be digested than Capon or Pullet; yet a Turkey-Pout is delicate eating, breeds good Blood, and is easily digested.

Partridges afford good and sweet Nourishment, and are easily digested; they fatten, and likewise dry up the superfluous Moisture of the Stomach, and contribute much to the Preservation of Health, their Flesh being better than that of Pullets.

Plovers, especially the Grey Sort, are good wholesome Food, and afford good Nourishment, only they are somewhat of melancholy Juice, according to some Writers.

Blackbirds nourish sufficiently when they are fat and young; but they are hard of Digestion.

Larks, if they are fat, nourish well, and are easily digested; they are best in *Autumn* and *Winter*.

Sparrows, when young, afford good Nourishment, and are reckon'd to be Provocatives; but they are not easily digested.

Peacocks nourish poorly, and are of a hard and slow Digestion, and breed melancholy Blood, therefore not worth any Body's eating.

Stares, if young and fat, nourish pretty well, but old ones are good for nothing.

Thrushes

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Thrushes nourish very well, and are easily digested, and the Mountain Thrushes are the best.

Quails are very nourishing, and pleasant to the Taste, they are likewise good for melancholy People; but some Authors say, that they cause the Cramp, and falling Sickness, with which it is said, this Bird is troubled. This, by the by, I take to be only the groundless Opinion of some credulous and whimsical Writers.

Turtle Doves nourish exceeding well, and are easily digested; they are good for the Stomach, and, according to some Authors, quicken the Understanding.

Woodcock, Snipe, and all other *long-billed* Birds that suck only animal Juices, or that feed upon Worms and other Insects, have their Juices more elaborate and exalted than those of *Pullets, Turkeys, Pheasant* or *Partridge*; and for that Reason they are much harder to be digested, tho' they are very nourishing.

Fish in respect of Flesh is less nourishing, because it is gross, phlegmatic, cold, and full of watery Superfluities. The old nourish better than the young, and those that live among Stones, Rocks and Gravel, are best.

Fish in general are hard of Digestion; for they feed upon one another, and their Juices abound with an *alkaline* Salt, that corrupts the Blood and causes chronical Diseases; for it is very remarkable, that those who live
much

much on Fish are afflicted with the *Scurvy*, Breakings-out upon the Skin, and other Diseases of a foul Blood : Besides, a true Sign of their Indigestion is, that every Body finds himself more thirsty and heavier than usual after a full Meal of Fish, tho' ever so fresh ; and is commonly forc'd to have Recourse to a *Dram* of some *Spirit* or other to carry them off.

The following Rules concerning Fish may be of use to the Reader.

First, That all fresh Fish should be eaten hot, and to eat less of Fish than of Flesh-meat. *2dly*, Not to eat them too often, nor after great Labour and Exercise ; for then they easily corrupt ; neither should they be eaten after other solid Food. *3dly*, Fish and Milk are not proper together ; nor are Eggs to be used unless with Salt-Fish. *4thly*, Great and slimy Fish are better pickled than fresh ; and observe, that the clearer and deeper the Water is, the better are the Fish that are nourish'd therein. *5thly*, *Sea-Fish* are wholesomer than fresh-water Fish ; for they are hotter and not so moist, and their Nourishment comes near that of Flesh-meat. *6thly*, Of all Sea and River Fish, those are best that live in rocky Places ; next to these, in gravelly or sandy Places, in sweet, clear, and running Water, where there is no Filth : but those Fish are bad that live in Pools, muddy Lakes, Marshes, and in any still or muddy Water. *7thly*, Amongst all the Fish both
Sea

Sea and River, those which are not too large are the best, and which have not hard and dry Flesh, that taste and smell well, and are crisp and tender, and have many Scales and Fins. 8thly, Fish are bad for cold and phlegmatic Constitutions, and only proper for hot and choleric People. The best Way of dressing Fish is to broil it; to boil it is the next, and to fry it is the worst.

Eels for want of Exercise are fat and slimy; they are of a delicate Taste, and nourish very much; but they offend the Stomach, and are hard to be digested, and being used too often, are apt to breed the Stone in the Kidneys and Bladder, and occasion the Gout and *Spasmodic Disorders*; therefore whoever eats much of them, and often, endangers his Health.

Carp of all Pond-fish is certainly the best, and the most noble, being of a very pleasant and grateful Taste, and nourishes well, in whatsoever manner it is eaten.

Lampreys are of great Nourishment; they are of a most delicate Taste, and are also Provocatives; but they are hard of Digestion, and bad for gouty People, and such as are troubled with Convulsive Disorders.

Pike is a clean, sound Fish, and nourishes very much; but is of hard Digestion.

Sturgeon nourishes well, and excites Venery; but is very hard to be digested. Of the *Spawn* or *Row* of this Fish pickled, is
N made

made what is called *Caveer*, which excites Appetite, and makes Liquor relish well.

Crabs and *Lobsters* are much of the same Nature; the Broth of them is good for thin and emaciated People, for they nourish very much; but they are, like all other Shell-Fish, hard to be digested.

Oysters are very nourishing, and preferable to all Shell-Fish, and ought to be eaten always before Dinner, and never to drink spirituous Liquors upon them, which harden them in the Stomach, and prevent their being digested. They are likewise very hard of Digestion when stew'd; therefore the Substance of them dressed in that manner is very improper for weak Stomachs. They cure the Heart-burn proceeding from Acidity or Sourness in the Stomach, and are proper Food in such, and many other Cases.

Turbut, *Soles*, and *Plaice*, are highly commended among Sea-Fish; for they have delicate Flesh, and afford very good Nourishment, are not easily corrupted, nor hard to be digested.

Pearch are reckon'd fine Fish; but they have soft, moist, and tender Flesh; they nourish but little, and are full of Excrementitious Juices, therefore they are not near so good as People imagine them to be.

Tench are very nourishing, but hard of Digestion.

Gudgeons and *Smelts*, of all small Fish are the best; they are wholesome Aliment, easily digested,

digested, and may be as safely given to sick People as *Whiting*, unless they are fry'd.

Flounders are good wholesome Aliment enough, and proper now and then as a Change for sickly People, and weak Stomachs, as they are not hard to be digested.

Salmon is grateful to the Palate, and very nourishing, affords good Juices, but is too luscious to make a hearty Meal upon it, or live on it for any considerable Time.

Trout is delicate eating, nourishes very well; the biggest, and such as is bred in gravelly Rivers, and sweet running Waters, is best. *Trout* is good for hot and young People, but bad for those that are decrepid, and for phlegmatick Constitutions.

Cod-Fish, when fresh and in Season, is very good Nourishment, and not hard to be digested; but if it be dry or Salt, it is gross Food, and of hard Digestion.

Haddock is much of the same Nature, but drier, yet it affords very good Nourishment.

Skate and *Thornback* are Fish of good Nourishment, and delicate eating, when rightly manag'd; for if they are newly taken and dressed, they are scarcely digestable even by the strongest Stomachs; but if they are too stale, then they smell *Urinous*, and are in a State of Putrefaction.

Barbel is very pleasant to the Palate, and the little ones are better than the great, and such as live in stony Places, and clear running
N 2 Waters;

Waters ; but their Flesh being hard, are not easily digested. The Roe of this Fish is carefully to be avoided, it having the Quality of a strong Cathartick.

Mackarel are very agreeable to the Taste ; but their Flesh being hard, dry, and easily corrupted, is of little Nourishment, hard of Digestion, and therefore not proper Food for tender, weak, or sickly People.

Herrings afford a great deal more Nourishment than the former ; but their being so very hard of Digestion, renders them improper for every Body, except some hard labouring People.

Sprats newly catch'd, and being either boiled or broil'd, afford good Nourishment, and are very agreeable to the Taste ; but they are windy, and for that Reason not proper for such as are subject to Flatulency.

Here it will be very necessary to give Attention to the following Particulars in the Choice of our *Aliments*.

1. That those *Vegetables* and *Animals* that come soonest to Maturity, are lightest of Digestion : thus the Spring Vegetables, such as *Asparagus*, some Sorts of Sallading, and *Strawberries*, are more easily digested than *Pears*, *Apples*, *Peaches*, and *Nectarines* ; because they have less of the *Solar* or Sun-Fire in them ; for their Parts are united by a weaker Heat, that is, with less Velocity, and besides they contain little or no strong or fix'd Salts.

2. Among

2. Among Animals, the common *Poultry*, *Sheep*, *Kids*, *Hares*, and *Rabits*, &c. which come to their Maturity, and propagate their Species in the same or a few Years, are much more tender, and readily digested, than *Cows*, *Oxen*, *Boars*, &c. for the Reason already given; and because their Parts cohere less firmly. And it is observable, that *Vegetables* which are longest in ripening, that is, whose Juices contain most of the *Solar* Heat in them, their fermented Juices produce the strongest *vinous Spirits*, such as *Grapes*, *Elder-Berries*, and the like: and that Animals, which are longest coming to Maturity, their Juices yield the most rank and most foetid urinous Salts.

3. That the larger and bigger the *Vegetable*, or *Animal* is in its Kind, the Food made thereof is the stronger, and harder to be digested. Thus a large *Onion*, *Apple*, or *Pear*, and large *Beef* and *Mutton*, are harder to be digested than the lesser ones of the same Kind; not only, as their Vessels being stronger and more elastic, their Parts are brought together with a greater Force; but also, because the Qualities are proportionably more intense in great Bodies of the same Kind. Thus a greater Fire is proportionably more intensely hot than a lesser one; and likewise, the Wine contain'd in a larger Vessel becomes stronger than that contain'd in a lesser, and consequently the Juices of larger Vegetables and Animals are more rank

than those of smaller ones of the same Kind.

4. *Sea-Fish* or *Animals*, are harder to digest than *Land Animals*; because, generally speaking, their Food is other Animals; and the Salt Element in which they live, renders their Flesh more firmly compact, Salts having a stronger Power of *Cohesion* † than any other Bodies. And for the same Reason, salt-water Fish is harder to digest than fresh-water Fish.

5. *Vegetables* and *Animals*, that abound with *oily*, *fat*, and *viscid* Substance, are harder to digest than those of a drier, fleshy, and more fibrous Substance; because oily and fat Substances commonly elude the Force and Action of animal Digestion, especially in such as have little Exercise and weak Stomachs; for their Parts attract one another, and unite more strongly than any other Substances, except *Salts*; inasmuch as their Softness and Humidity relax and weaken the Tone and Force of the Stomach, the Fat and Oil being shut up in little Bladders, that are with Difficulty broken and separated. Thus *Nuts* of all Kinds, as they contain a great deal of Oil, pass thro' the *Alimentary Duct* almost undigested; for the same Reason, *Olives* are more difficult to digest than *Pease*, and fat Meat than the lean of the same.

6. That all *Vegetables* and *Animals* of a strong, pungent, and aromatic hot Taste, are harder

† Sticking together.

harder to digest than those of a softer, milder, and more insipid Taste; because such Substances abound with a great deal of Salts, or an Oil extremely active and heating; for high Relish comes from abundance of Salts and exalted Oils. A great deal of Salts supposes such *Vegetables* and *Animals* as are a long time coming to Maturity; and where Salts abound, the Fibres are dryer, harder, and more firmly in Contact with each other; for that Reason they are more difficultly separated, and harder to be digested.

But however, Sea-Salt, or Rock-Salt, being fixed and of the same Nature, of all Seasonings is the best, without which no Food is good, and is used by Mankind in their Aliments for the following Reasons. 1. That thereby the Food may descend easier into the Stomach, and render it more savoury. 2. Because it resists Putrefaction; consuming by its Dryness, that Moisture whereby Putrefaction might have been occasion'd. 3. It excites the Appetite, and digestive Faculty, and prevents Nauseating. 4. It dissolves, attenuates, and dries up the superfluous Moisture, provokes the Bowels to discharge the Excrements, and is therefore used in *Clysters* and *Suppositories*. Besides, as all animal Substance contain no fix'd Salt, they want the Assistance of those, in order to promote Digestion, which preserve them both within and without the Body from Putrefaction; and as these fix'd Salts pass unalter'd thro' all the Strainers of a

human Body, the moderate Use of them is very proper to preserve Bodies through which they pass from Corruption.

But on the other Hand, the immoderate Use of Salt produces a Multitude of woeful Disorders; such as *Melancholy*, *Vapours*, and bad Nourishment; it dries up the Blood, and causes the *Muriatick*, or *Briny-Scurvy*, *Scabbiness* and *Itch*, *Ring-worms* or *Tetters*, and even the *Leprosy*, with a great many other foul Humours and Eruptions in the Face and other Parts of the Body; and likewise it occasions Obstructions in the Urinary Passages, which oftentimes produce Ulcerations, Stone, and Gravel in the Kidneys and Bladder.

And it will easily appear, that *Salt* can produce all these bad Effects, if we consider that *Salts* consist of *hard* and *plain Surfaces*, and in all Changes recover their Figure, and unite the most firmly of all Bodies whatever; for their plain *Surfaces* bring many Points into Union and Contact, and their Hardness and constant Figure render them durable and unalterable; and thereby the *active Principle*, and *Origin* of the Qualities of Bodies, if in a strict Sense there be any such Thing as a *Principle*; and when they approach within the *Sphere* or Limits of one another's Activity, they firmly unite in Clusters, all which render the Separation of their original Particles the more difficult, and by that Means they obstruct the cuticular Glands, which are the *Emunctories* or Strainers of the whole Body,
thro'

thro' which not only the peccant Humours pass, but likewise the greatest Part of the Liquors we drink, after having convey'd the Aliments into the Blood, being part of their Office, and in the next Place to dissolve the saline or terrestrial Particles to be carried off thro' the Glands of the Skin and Kidneys. So that when Salts adhere and unite in Clusters in the *excretory Ducts* of the Glands of the Skin, or the Kidneys, in the former they stop and pen in between the Scales of the * *Scarf-skin* the excrementious Humours, which ought to be carried off by insensible Perspiration, and thereby corrode the Skin, and produce Scurvies, and other cutaneous Eruptions; in the latter, they cause Inflammations, Ulcerations, Suppression of Urine, and, as I have observed before, Stone and Gravel. Thus we may plainly see, how the immoderate Use of Salt is capable of producing not only all the Disorders already mentioned, but likewise a great many more in the *animal Oeconomy*.

Honey is the most accurate or exact Production of the vegetable Kind, perform'd by the *Bee*, being a most exquisite vegetable *Soap*, resolvent of the *Bile*, balsamick and pectoral: It is likewise deterfive and opening,
provokes

* It is the outermost Covering of the Body, and is that soft Skin which rises in a Blister upon any Burning, or the Application of a Blistering-Plaister. It sticks close to the Surface of the true Skin, to which it is tied by the Vessels which nourish it, tho' they are so small as not to be seen.

provokes Urine, and cleanses its Passages, and is excellent for old and phlegmatick People of a cold Constitution; for it warms the Stomach, moves the Body, resists Corruption, and breeds good Blood; but sometimes it causes Wind and Gripes in some Constitutions.

Oil of Olives is sweet and pleasant, and very agreeable to Nature; and it is best when two Years old, and ought to be made of ripe Olives.

Oil of Sweet Almonds, when fresh drawn, is next to it in Goodness, and much properer for Sick People, it being of a cooler Nature, and more easily digested, tho' not so agreeable to the Palate.

Oil fattens, and taken in great Quantities, is excellent to expel Poison by vomiting, and by sheathing the Coats of the Stomach from its corrosive Salts; but eating *Oil* too often destroys the Appetite, because all *Oils* are very hard to be digested, as I have already proved.

Vinegar: The best is that which is made of the best Wine: It is an Acid of very peculiar Quality, different from that of all other Acids; for it is cooling, and yet not coagulating; for it gently dilutes the Serum of the Blood, as has been often proved by Experiments. It is inciding, digestive, and opening. It is good against the Redundancy of Bile, and to extinguish the Heat of Choler and Thirst. It strengthens the Gums, excites the Appetite, removes Obstructions, helps Digestion, and is good for hot Stomachs, and re-
sists

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sists Putrefaction ; therefore it is very useful against pestilential Diseases, especially in Time of the Plague : But too much Use of it breeds melancholy Humours, injures the Nerves, emaciates some Constitutions too much, offends the Breast, and makes People look old and withered, with pale Lips.



C H A P. VII.

Of the Power of Aliments upon human Bodies, with their good and bad Effects.

ALL Bodies which can be changed into the Fluids and Solids of our Bodies by the animal Powers, are called *Aliment*, as has been observed in the first Paragraph of Chap. VI. And to take it in the largest Sense, by *Aliment* is understood every Thing which a human Creature takes in common Diet, as Meat, Drink ; and Seasoning, as *Salt, Spice, Vinegar, &c.*

Our Food therefore consists, not only of such Particles as are proper for the Nourishment and Support of the Body, but likewise contains in it certain active Principles, such as *Salts, Oils, and Spirits, &c.* which are endued with such Properties, as both to vellicate and stimulate the Solids, to quicken the Circulation, and by attenuating the Fluids, render them
more

more fit to undergo the necessary *Secretions* of the Body. The Art then of preserving Health, and obtaining long Life, chiefly consists in a Mediocrity of such Diet as neither increases the Salts and Oils, so as to produce Distempers, nor too few, so as to suffer the Solids to become too much relaxed; and if this desirable Medium be attained, by following the common ordinary Diet of the healthiest People in any Country or Climate; that is then, indisputably, the best Method in general to preserve Health.

For it is certainly true, that the infinitely wise Creator has provided Food proper and peculiar to every Country and Climate, which is best for the Support of the Creatures he has placed therein, as may be seen by the Chearfulness and Health of the middling Sort of People of all Nations, who use only a simple Diet, without lusting after voluptuous or foreign Delicacies. Yet the Diseases of human Bodies often require Substances of more active Principles than what are found in common Aliment, in order to produce sudden Alterations; but where such Alterations are not necessary, the same Effect may be obtained by the repeated Force of Diet, with more Safety to the Body, where the sudden Changes are less to be apprehended. The smaller Activity of the Aliment is compensated by its Quantity; for according to the Laws of Motion, *if the Bulk and Activity of Aliment and Medicines are in reciprocal Proportion, the Effect will be the same*; for they both only bring
about

about the Effect, by acting either upon the Solids or Fluids, or upon both ; upon the first, by stimulating, contracting, or relaxing ; upon the last, by attenuating, coagulating, or rendering them acrimonious or mild, or by increasing or diminishing their Motion through the Vessels.

That all these Actions can be performed by Diet as well as Medicine, is evident from Reason, Experience, and in some Cases by ocular Demonstration ; as in *Chirurgery*, in Wounds and Sores, where the Influence of Diet upon them is plainly seen ; for a Diet too relaxing weakens the Spring of the Vessels so much, that they cannot sufficiently resist the Influx of the Liquid, and so begets a *Fungus*, or proud Flesh ; and when too astringent, it produces a *Cicatrice*, or callous Substance. The Effects of warm Water and mealy Substances in relaxing ; of Spirits, in stopping *Hæmorrhages*, or Fluxes, and consolidating the Fibres ; the Power of *Alkaline* Absorbents in subduing Acidity, and Oil in stopping Perspiration, is very well known to both *Physicians* and *Chirurgeons*.

All those Substances which stimulate the solid Parts, produce the greatest Alterations in animal Bodies ; for violent Sneezing produces Convulsions in all the Muscles of Respiration, and an universal Secretion of all the Humours, as *Tears*, *Spittle*, *Sweat*, *Urine*, &c. And even all this Alteration can be produced by the tickling of a Straw or Feather ; there-

therefore acrid or sharp Substances, that are minute enough to pass into the capillary Tubes, must stimulate the small Fibres, and irritate them into greater Contractions. And many Things which we take as Food, or with our Food, have this Quality in some Degree : Such as the Juices of acid Vegetables, fermented Liquors, especially sharp Wines, and fermented Spirits ; aromatical Vegetables, as *Savory, Fennel, Thyme, Garlick, Onions, Leeks, Mustard*, all which abound with a volatile pungent Salt ; and, in short, all Spices in general, and all Vegetables, which being corrupted, easily resolve themselves into a foetid, oily, *alkaline* Substance.

The solid Parts of an animal Body may be contracted variously : *First*, by dissolving their Continuity. For as a Fibre is cut through, it contracts itself at both Ends ; therefore all Things that are so sharp as to destroy the small Fibres, must contract them. *Secondly*, Whatever empties the Vessels, gives Room to the Fibres to contract ; so that Abstinence produces this Effect in the best Manner : And whatever shortens the Fibres, by insinuating itself into their Parts, as Water in a Rope, contracts them ; and fermented Liquors possess this Quality in a great Degree.

The more sulphurous or chymical Oil any Spirit contains, the more pernicious it proves to the human Body, because it is harder to be wash'd away by the Blood ; therefore *Brandy* is more easily carried off than *Spirit of Juniper* ;

niper; and *that* than Spirit of *Annise-seed* or *Rum*. Compound aromatical Spirits destroy, *first*, by their fermentative Heat: *2dly*, By their oily * *Tenacity*: *3dly*, By a caustic Quality residing in all Spices apt to destroy the solid Parts. However these Qualities may render them proper in some Cases, taken in small Quantities.

Austere acid Vegetables have this Quality of contracting and strengthening the Fibres, without a great many of the bad Effects of distilled Spirits, such as all Sorts of *Sorrel*, the Virtues of which consist in an acid, astringent Salt, which is a Sovereign Remedy against a *putrescent, bilious Alkali*; and several kind of Fruits, as *Quinces*, some Sorts of *Pears*, with the *Marmalades* made of them; likewise *Medlars, Capers, Barberries, Pomegranates, and Purslain*, all such are easily distinguish'd by a rough and styptic Taste. And amongst Drinks, austere Wines, unripe Fruits likewise have the same Quality; but they are apt to cause foul *Eruptions* on the Skin, to obstruct the Nerves, and occasion *Palsies*.

Relaxing the *Fibres*, is rendering them flexible, or easy to be lengthen'd without Rupture or Breaking, which is perform'd only in the capillary *vascular Solids*.

Of all Liquids endued with this Quality of relaxing, warm Water is the first; and next to it, the watery Decoctions and Infusions of
Mealy

* Adhering or sticking together.

of Mealy Vegetables, or Grains, as *Oats*, *Barley*, &c. likewise all sweet and mild Garden Fruits, and almost all Pot-Herbs, as *Spinage*, *Beets*, *Cabbage*, *Coleworts*, and all that Class; *lactescent Plants*, such as yield a milky Juice, as *Lettuce*, *Succory*, and *Dandelion*, if unfermented, for Fermentation changes their Nature; also fresh *Oils* of mild Plants, or *Nuts*, *Cream*, *Butter*, *Marrow*, and *Whey*; all which Things help to weaken and relax the *Fibres*, and are therefore proper Remedies for a too rigid, strong, or *elastic* State.

The Qualities of the Fluids of a human Body can be likewise chang'd by Diet; as by attenuating or diminishing the Cohesion of the Particles of the Fluid: and the Cohesion of the Particles depends upon the Weight and Quantity of Fluids; therefore Abstinence and a slender Diet attenuates or thins them, because emptying the Vessels gives room to the Fluid to expand or dilate itself. Besides, whatever penetrates and dilutes at the same Time, as Water impregnated with some penetrating Salt, attenuates very powerfully; and the great Effects of medicated Waters may be justly ascrib'd to this Quality; likewise all *saponaceous* Substances composed of Oil and Salt, such are Honey, and the *Robs* and *Gellies* of most Fruits; *Vinegar* and *Honey* mix'd is a powerful Resolvent. All stimulating Substances, by increasing the Motion of the Blood, attenuate, unless they increase the Motion

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Motion so much, as at last to produce *Coagulation*.

The second manner of operating upon the Fluids is by thickening the Blood, which is perform'd by dissipating the most liquid Parts of it by Heat, or by insinuating some Substances which make the Parts of the Fluid cohere more strongly: and the *acid, austere* Vegetables just now mention'd, have this Quality of condensing the Fluids, as well as strengthening the *Solids*.

Another manner of operating upon the Fluids, is by increasing or lessening their Quantity: and the first is effected by a plentiful Diet, and the Suppression of Evacuations; the latter, either by a spare Diet, or promoting the animal Secretions, that is, expelling the Fluids out of the Body; which may be perform'd by Substances that are laxative, as *animal Oils*, fresh *Butter*, *Cream*, *Marrow*, or fat *Broth*; the *Oils* of mild Vegetables, as that of *Olives*, *Almonds*, and the Fruits themselves; likewise all oily and mild Fruits, as *Figs*, and most Garden Fruits, by the Salts they contain, lubricate the Intestines; and some *saponaceous* Substances which stimulate gently, as *Honey*, *Hydromel*, or boil'd *Honey* and *Water*, and even brown *Sugar*. Besides, Substances that are *diuretick*, are proper for this Intention, such as *Whey*, and *Salts* of all Kinds, *Parsley*, *Celery*, *Sorrel*, *Chervil*, *Asparagus*, *Eringo*, and *Nutmegs*, &c.

Acrimony or Sharpness is not natural, but introduc'd into the Fluids of animal Bodies, either by Sickness, as in *Cachexies*, or ill Habits of Bodies, and Scurvies, &c. or by Diet that is either *briny* or *acid*, which consists of two Sorts, that is, of Things naturally acid, or render'd so by Fermentation; or *alkaline* aromatick Substances, consisting of Salts, and highly exalted Oils intimately united, which by increasing the Velocity of the Blood beyond what is natural, occasions an Attrition of the Parts, and thereby disposes the Blood and Juices to an *alkaline* Acrimony.

But the Juices of sound Animals consist of Water impregnated with *Salts* of a peculiar Nature, which are neither *acid*, nor perfectly *volatile*; for, in the Evaporation of human Blood by a gentle Fire, the Salt will not rise, but only the Spirit and Water, nor perfectly *fix'd*; for human Blood calcin'd, yields no *fix'd* Salt, nor is it a *Sal Ammoniac*; for that remains immutable after repeated Distillations, and Distillation destroys the *ammoniacal* Quality of animal Salts, and turns them *alkaline*. So that it is a Salt neither quite *fix'd*, nor quite *volatile*, nor quite *acid*, nor quite *alkaline*, nor yet quite *ammoniacal*; but soft and benign, approaching nearest to the Nature of a *Sal Ammoniac*.

Hence we may easily perceive, that the elementary Salts of sound Animals are not the same as they appear by Distillation; for these


Alte-

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rations are produc'd by Fire: and those Salts are of a peculiar, benign and mild Nature in healthy Persons, who have * *vital Force* to subdue all the Substances they feed upon; but in such who have not that *vital Force*, or commit some Errors in their Diet, these Salts are not sufficiently attenuated, and retain their original Qualities, which they discover in *Cachexies*, or ill Habits of Bodies, *Scurvies* of several Kinds, and many other Distempers; the Cure of which chiefly depends upon the Choice of Aliment with Qualities opposite to the Nature of these Salts.

Acrimony in the Blood commonly consists of three Sorts, according to the Nature of the Salts in which it resides; that is, either *Acid*, *Alkaline*, *Muriatic*, or briny, as in the Sea-Scurvy; but this last approaches more towards the *alkaline* State, and admits of the same Cure. *Acid Acrimony* resides chiefly in the first Passages, that is, the Stomach and Intestines, proceeding often from the Weakness of Digestion, and the too long Duration of Vegetables, and Milk, or fermented Liquors in the Stomach. All animal Substances are *alkalescent*; and of Vegetable Substances some are *acid*, others *alkalescent*, and each Sort is to be used according to the two different Intentions hereafter mention'd.

* By *vital Force*, is understood the Sum of all these Powers in an animal Body, which converts his *Aliment* or Food into its own Nature.

 The proper Diet for the Cure of the *acid Acrimony*, are Vegetables of all Kinds, as *Garlick, Onions, Leeks, and Celery*; the antiscorbutick Plants, as *Cresses, Brooklime, Scurvygrass, &c. Carrots, Turnips, Potatoes, Eringo Roots, Asparagus, Horse-radish, Mustard, and Cabbage*. All animal Substances being likewise *Alkalescent*, or contrary to *Acidity*, are also very proper Food in this Disorder, more particularly all *Fishes* of the Shell-kind. Water, by its diluting Quality, subdues *Acidity* very powerfully. Oils are *Anti-acids*, so far as they blunt *Acrimony*; but as they are sometimes hard of Digestion, they may produce *Acrimony* of the *alkaline* Sort.

The *alkaline Acrimony* being opposite to the former, is cur'd by a proper Diet made of the Decoctions of farinaceous or mealy Substances, especially such as are made of *Oats* are proper, as having an *acescent* Quality. Therefore this *alkaline Acrimony* requires a plentiful Use of Vinegar, and acid Fruits, such as *Oranges*, which contain a Juice most effectual in the Cure of the *muriatic* or *briny Scurvy* of Sea-faring People; the Juice of *Lemons* is likewise proper, and more cooling and astringent than that of *Oranges*: and in this Case all the mild *Antiscorbuticks* are indicated, as *Sorrel, Cichory, Endive, Lettuce, and Apples, &c.* and of Liquids *Whey*. On the contrary, all the *acid Antiscorbuticks*, as *Horse-radish, Mustard, and Scurvygrass, &c.* are very hurtful in this, and all other hot Scurvies. Other

Other Sorts of *Antiscorbuticks* proper in this *alkalescent* State of the Fluids, are called *Astringents*, such as *Pomegranates*, *Capers*, and most of the common *Pickles* prepar'd with *Vinegar*. And as the Extremity of *Alkali* is Putrefaction; so all *acid* Substances, and Sea-Salt, resist such a *putrescent* Quality in the Fluids; but as the latter is a sharp solid Body, and unalterable in all the Circulations of the animal Body, and when it is taken constantly in a Diet of Salt Meat in too great Quantities, (as I have taken Notice of in the latter End of the preceding Chapter) it breaks the Vessels, produces *Erosions* of the solid Parts, and all the Symptoms of the *briny* Sea-Scurvy, which is to be cur'd by acid Vegetables, and not by the hot *Antiscorbutics*, as I have just now observ'd.

There are other Sorts of Substances which are proper in the Cure of both Sorts of *Acrimony*, which are *demulcent* or mild, because they sheath these sharp Salts, as *farinaceous* or mealy *Pulse*, such as *Pease*, *Beans*, *Lentils*; native Oils of Animals, as *Cream*, *Butter*, *Marrow*. Likewise all Plants that are without Smell or pungent Taste are *demulcent*; and also all the *alimentary* Parts of sound Animals; for none of their Juices will hurt or smart either the Eye or a fresh Wound.

As *Liquors* make a considerable Part of our Aliment, it will not be improper to give a short Account of their principal Qualities in

this Place, before I treat of different Constitutions, with the Diet proper for each in Particular.

Drink being an essential Part of our Food, is either *Water*, *Milk*, or *Whey*; or fermented Liquors, such as Malt Liquors of different Sorts, *Cyder*, *Wines*, or a Mixture of these: And as the chief Intentions of *Drink* are, 1st, To moisten and convey our Food into the Stomach, and the Nutriment thereof to the respective Parts of the Body, and to allay *Thirst*; 2^{dly}, To dilute the Blood, that it may circulate through the minuteſt Veſſels; 3^{dly}, To diſſolve and carry off, by Urine and *Perspiration*, the ſuperfluous Salts we take in our Food, which are unalterable in a human Body, as I have obſerv'd in one or two Places already: ſo pure Water answers all theſe Intentions beſt, except in ſome few Caſes hereafter mentioned; for no Liquor that we drink will circulate ſo well, or mix with our *Fluids* ſo immediately as Water; becauſe all other Liquors we drink are impregnated with Particles that act ſtrongly either upon the Solids or Fluids, or both; but as Water is the only ſimple drinkable *Fluid*, and being altogether inactive, ſo it is the fitteſt and moſt innocent Liquor for diluting, moiſtening, and cooling; which are the chief Ends of *Drink* pointed out to us by Nature: Beſides, nothing will diſſolve Salts and carry what is ſuperfluous of them out of Body, ſo well as pure Water,
that

that being the proper *Menstruum* or Vehicle for dissolving all Kinds of Salts.

The benign, mild, and other useful Qualities of Water plainly shew, that it was design'd by the most wise Creator for our common Drink ; and, without doubt, was the primitive original Drink : And happy had it been for Mankind that other mix'd and artificial Liquors had never been invented ; for Water is so necessary to our Subsistence, that we could not live a Moment without it ; because this Element furnishes all the fluid Parts of our Humours, without which they could not circulate ; and it dissolves all the Salts in the Blood, whereby some are carried to their proper Places within the Body, and others to proper *Emunctories* for their Expulsion from it. It serves to prepare our Food, and then for a *Vehicle* to convey it out of the Stomach into every little *Meander* of the Body, both for Health and Nourishment : So that Water alone is sufficient and effectual for all the Purposes of human Wants as to Drink.

Therefore it is evident from what has been said, that Water is the best and most wholesome Drink in general ; but in some *Constitutions*, where something is necessary to warm and act as a *Stimulus*, then fermented Liquors taken in Moderation are proper, such as *Beer, Ale, Cyder, Wine, &c.* the Quantity and Choice of which depends upon the Age, Constitution, and Manner of Living of the Drinker ; for in Youth, Milk, Water, or

Whey are the properest, and in a middle Age a little more generous Liquors may be sometimes allow'd; but most of all in old Age; for according to the old Saying, *Lac senum est Vinum*, Wine is old Men's Milk.

As to Malt Liquors, small Beer well boiled, and of a due Age, is the best for common Drink; otherwise it must be very hurtful to Persons of weak Nerves and slow Digestion; for by fermenting anew in the Bowels it will fill the whole Cavity of the Belly with *Fumes* and *Vapours*, which will at last produce very bad Effects in a weak Constitution.

As for strong Beer, it should be made of Water that will bear *Soap*; be well hopp'd and boil'd, that it may keep till all the gross and viscid Parts fall to the Bottom of the Vessel, without the Help of any pernicious Composition for fining Liquors, too frequently made Use of to the Destruction of thousands; for it is very notorious, that all your fine *Ales*, or *Home-brew'd*, as they are call'd, have neither due Age or *Hops* enough to clarify of their own Accord, being brew'd one Week and drank the next, or soon after; so that the Seller is obliged to have Recourse to some Art or other to fine them down, which is very often with *unslack Lime*, or at best a Mixture of *Ising-glass* *, and other Ingredients
very

* Is a very strong *Glew*, made of a Kind of *Fish* catch'd in great Quantities in Rivers in *Hungary* and other Parts: It is used by *Cabinet-makers*, and sometimes ordered as a Medicine to stop *Fluxes* and Seminal Weaknesses; but it is very improper for

very destructive, if not poisonous, to many Constitutions : Besides, these Liquors are of so agglutinating and thickening a Nature, as to produce *Stone, Gravel, Gout, Bloatedness*, and great Thirst, with the Loss of Appetite : And to prove the agglutinating Qualities of all such Liquors, it is experimentally known, that they make excellent *Bird-lime* ; and when simmer'd for some Time over a slow Fire, make the most sticking and best Plaister for old Strains.

We have likewise convincing Reasons to have the same Opinion of the *Yorkshire, Nottingham, and Welch* intoxicating *Ales* ; and, in short, all *fine Ales* brew'd for Sale : For it is certainly true, that all these *fine Liquors*, far fetch'd and dear bought, have always something in their Composition hurtful to our Constitution, more than meer Water, Malt, and Hops ; therefore I would advise all those, who have any Regard for their own Health or Lives, to avoid, as much as possible, the Use of all such Liquors, and more especially the *valetudinary, sedentary, studious, and contemplative* People ; and, in fine, all such as have weak *Nerves* and slow Digestion.

As the frequent Use and Excess of *Drams*, or distill'd Spirituous Liquors, is a *Vice* of so horrid

for such as are otherwise in good Health ; for the constant Use of it will produce *Gravel, Stone, Blotches*, and *Eruptions* on the Skin, by glewing up as it were the *Urinary Passages*, and likewise stopping *insensible Perspiration* ; and, in short, it will produce the same bad Effects in human Constitutions, as the common *Glew* used by *Joyners and Carpenters*.

horrid a Nature in itself, and now become *epidemical*, not only among *Mechanicks* and *Tradesmen*, but among Persons of the brightest Genius, and finest Taste and Accomplishments; and, alas! even among the finest Part of the Creation, I mean the Fair Sex; and those of them too, which is still more astonishing, who are in all other Respects *blameless*, and of the *strictest Virtue*! I say, as the Case is so, it will not be improper to explain the poisonous Qualities and direful Effects of such pernicious Liquors, which destroy Millions, both in Body and Soul.

Let us then consider, that distill'd Spirits are but an Accumulation of fine Salts and light Oil, compacted together into the smallest Bulk; the Salts are so hard and solid as naturally to retain their Heat and Activity the longest, into which Water cannot enter; the Oil † is so inflammable, that it most readily receives Heat and Fire, and by that Means defends the Salts from the Power of Water over them: So that in the continued Distillation of Spirits, this

† They are guilty of a gross Error, who imagine that the more oily any distill'd Spirit is, the more wholesome it will prove to the Constitution; for they do not consider that it is a very subtle, sulphurous, chymical, inflammable Oil, blended with Portions of very fine Salts, raised by the Force of Fire, and that it is quite different in its Nature and Quality from the benign and pectoral Oil of Olives or Sweet Almonds, or any other express'd Oils produced without Fermentation or Fire. Hence it is evident that *Rum*, or double-distill'd Spirit of *Anise-seeds*, and Spirits distill'd from aromatick Plants, are much more difficult to be digested and carried off than *Brandy*, or Spirit of *Juniper*; and that for no other Reason, than that they contain too great a Quantity of burning Oil.

this Action of the Fire is so strong as to reduce the Spirits at last into liquid Flames, which will, of their own accord, evaporate in visible *Flames* and *Fumes*.

Besides, it is observable that every Thing that has pass'd the Fire so long a Time as to divide and penetrate its Parts as far as it possibly can, retains ever afterwards a corrosive and burning Quality. This is manifest from the firey and burning *Touch* and *Taste* of new-distill'd *Spirits*; as also from the burning of a Lime-stone, which retains its heating and drying Quality ever after, tho' extinguish'd by Water.

Hence it will manifestly appear, that running into the frequent Use and Habit of *Dram-drinking* will as certainly kill as *Laudanum*, or *Arsenick*, tho' not so soon; for such Liquors contract, harden, and consolidate many Fibres together, abolishing many Vessels, or Canals in the Body, especially where the Fibres are the tenderest, as in the Brain, by which Quality they destroy the Memory and *intellectual Faculties*, abrade and wear off the villous Coat of the Stomach, and thereby expose its *nervous* Coat to the Insults of the most firey, corroding, saline, and caustick Particles of the *Spirits*; by which means the Springiness or Elasticity of the Fibres is so weakened, that the whole Stomach becomes at last soft, flabby, and relax'd. Hence a Loss of Appetite, and an Inability to digest the small Quantity of Food that is taken in; whence arise

Cru-

Crudities, Nauseas, Vomitings, Tremors, nervous Convulsions, Consumptions, Dropsies; likewise Gout, Stone, Rheumatism, raging Fevers and Pleurifies, which for the most part nothing but Death alone can remove at last.

What a melancholy *Scene* do we daily behold, in all Parts of this great Capital, of Numbers of miserable Creatures, render'd not only useless to themselves, to their Families, Friends and Relations, but likewise burthensome to the Publick, and a Scandal to both Christianity and the rest of their Fellow-Subjects! And all this great Calamity entirely owing to the Folly of a bewitching Habit of *Dram-drinking*. And what is still most surprising, we see even the *Moral*, and the *Sensible*, bound in these Chains and Fetters, that nothing less than *Almighty Grace*, or the unrelenting Grave can release them; for they are deaf to Reason, and to their own Experience, and even to the express Words of the *Scripture*, which says, *That the Drunkard shall not inherit the Kingdom of Heaven.*

From this Doctrine it will appear, to the Evidence of a Demonstration, that next to *Drams*, no Liquor deserves to be *stigmatized* and detested more than *Punch*; for it is a Composition of such Parts, that not one of them, except the pure Water and Sugar, is wholesome, or friendly to any Constitution, especially to *valetudinary, tender, weak, and studious* People. The chief Ingredient being either *Arrack, Rum, Brandy*, or Malt-Spirits, and
all

all of them rais'd by Fire, from the fermented Juices of Plants brought from hot Countries, or which have born the Heat of the Sun longest in our own Climate; for it is observable that Vegetables, whose Juices have most *Solar* Heat in them, their fermented Juices yield the strongest Spirits in Distillation.

The other principal Part of the Composition being *sour Juice* of unripe *Oranges* or *Lemons*. And if we consider, that the Juice of a *Crab-Apple*, of unripe *Goosberries*, or *Grapes*, or even the Juice of *Sorrel*, would come up at least to their Virtue in extinguishing the Heat of the burning Spirits, if not to their Flavour: And yet every body who is not depriv'd of his Senses, must know how destructive an Ingredient such Juices would be to the fine Fibres of the Stomach and Bowels.

For it is evidently true, even from Experience, that all fermenting Juices, such as these are in a very great Degree, must be highly injurious to the human Constitution; for meeting with *Crudities* in the Bowels, they must raise a new Struggle or Fermentation there, and so fill up the whole Cavities of the Body, with acrid *Fumes* and *Vapours*, which is extremely prejudicial to the Bowels, especially when the Constitution is tender and weak.

And in the *West-Indies*, where the People are forced to drink much *Punch*, by reason of the Violence of the Heat, and for Want of other proper Liquors there, tho' the *Lemons*
and

and *Oranges* are in full Perfection, yet the Inhabitants are universally afflicted with *nervous* and mortal *Dry-Gripes*, *Cramps*, *Palsies*, and *Convulsions*, which kill them in a few Days, and all intirely owing to this poisonous Mixture, *Punch*.

Notwithstanding what I have advanced against the *deliterious* † Qualities of *Drams* and *Punch*, at least when taken for any Constancy, or in any great Quantity, for some Poisons are only so by their Quantity, yet I would not be understood here to discourage the innocent Means of enlivening Conversation, promoting Friendship, comforting the Sorrowful, and raising the drooping Spirits, at proper Times with a chearful Glass of some good wholesome Liquor or other ; for the Sober can receive no Prejudice from a moderate Use of Liquors : On the Contrary, it will help to invigorate and re-establish the Constitution, especially after the Fatigues of Labour or Study. Neither am I against the taking a proper cordial *Dram* sometimes, as in an actual Fit of the *Colick* or *Gout* in the Stomach ; or upon a full Meal of *Fish*, *Pork*, &c. when a Glass of good Wine cannot be had.

But the Frenzy of being given to the too frequent Use and Excess of Liquors, is abominable ; for a *Sot* is the lowest and the most contemptible Character in human Life ; and as for the *Profligate*, the *Sensual*, and Voluptuous,

† *Poisonous*.

luptuous, they are past reclaiming, and therefore deserve no Advice, at least they will take none. However, I present them here with a short *Sketch* of the Effects of *Drunkenness*, to contemplate upon at their Leisure, if they can spare any Time from the bewitching Folly of sotting and drinking.

The *Effects* then of *Drunkenness* render the Blood inflamed into a *Gout*, *Stone*, and *Rheumatism*, raging *Fevers*, *Pleurisies*, *Small-Pox*, or *Measles*.

2. The *Passions* are enraged into *Quarrels*, *Murder*, and *Blasphemy*; the *Juices* are dry'd up; and the *Solids* scorched and shrivelled.

3. A *Resolution* of the *Nerves*, *Cramps*, and *Palsies*.

4. *Inflation* of the *Belly* and *Dropsies*.

5. *Redness* and *Rheums*, with an *Inflammation* in the *Eyes*.

6. *Tremblings* in the *Hands* and *Joynts*, *Head-Aches*, *Quinsies*, and *Scurvies* of all *Kinds*.

7. *Sicknesses* at the *Stomach*, with *sour Belchings*, *Reachings* and *Vomitings*.

8. A *furious* and *unmanageable Disposition* to *Lust*, which hurries them to the *base* and *sordid* Company of *Harlots*, and *impure Women*, by whose Means they most commonly acquire a *foul Disease*, under which they often labour for the greatest Part of the Remainder of their Lives, in *Shame* and *Torments*;

ments ; nay some become *incurable*, and even rot by Piece-meal, before their Dissolution.

9. A *Decay of Memory and Understanding*, Loss of *Credit and Reputation*.

10. An *Unfitness for Business*, or the Dispatch of the Affairs of Life ; and a Readiness of discovering all *Secrets*.

These, with a great many more, are the bitter *Fruits of Drunkenness*, even in this Life ; and in the next, according to the express Words of *holy Writ*, will be rewarded with everlasting Miseries, as being thereby excluded the Kingdom of Heaven.

*A short Account
of different
Wines in gene-
ral.*

As it would be endless to enter into a long Account of the different Qualities of all Sorts of *Wines*, therefore I shall only say in general, that all the light Wines, of a moderate Strength, due Age, and full Maturity, are much more wholesome for the Constitution, and preferable for Conversation, Cheerfulness, and Digestion, than the *rich, hot, strong and heavy Wines* : For the light *Wines* inflame the Juices of the Body less, and go off the Stomach with less Difficulty ; they likewise afford longer Time for Conversation and Cheerfulness, with less Danger.

Red *Port Wine* is strong and astringent ; but *white Port* and *Spanish Wines* are stimulating and attenuating. *French Wines* are lighter, and not so strong as the *Portugal* and *Spanish Wines* ; which renders them

wholsomer for thin and dry Constitutions. Fine old *Rhenish* and *Moselle* Wines are very wholsome, especially the Former, which is exceedingly good for most Constitutions.

Strong made *Country Wines* are prejudicial to all Constitutions, being very windy, heavy, and heady, taken in any considerable Quantity ; therefore it is surprizing the extreme Fondness People of the better Sort in *England* have run into, for such Liquors ; and for no other Reason that can be thought of, than the only one the Vulgar give for drinking *Brandy* or *Gin*, that they sooner intoxicate them.

The last Thing I have to say concerning Liquors, is, that Wine, and all other strong Liquors, are as hard to digest, and require as much Labour of the *concoctive Powers*, as solid and strong Food itself ; and this is not only evident with respect to Persons of weak Stomachs and Digestion, but also from strong and healthy People, who only drink either Water or Small Beer at their Meals, and shall be able to eat and digest almost double the Quantity of what they could, did they drink strong Liquors. Therefore it appears very plain, that we should always drink very little strong Liquors at our great Meals, otherwise we must certainly impair the Constitution, and load it with various Diseases at last ; for such Liquors, by their Heat and Activity, hurry the Food *unconcocted* into the Habit of the Body, and by that Means lay a Founda-

P

tion



C H A P. VIII.

*Of different Constitutions, and the Diet
proper for each.*

ALthough I have given an Account of *Temperaments* or *Constitutions* in general in the Beginning of *Part I. Chapter I.* of this Treatise; yet it will be necessary to treat of *them* in a more peculiar Manner in this Place, that every one may easily know the Nature of his *own* in particular. And as I have explained the Nature and Qualities of *Aliments*, in the two preceding *Chapters*, with their good and bad Effects upon human Bodies, it will be likewise necessary to lay down Rules of Diet proper for each Constitution in particular, in this Chapter, by which Means it will not be difficult for any one to observe a sure and easy Method in regard to what may be either useful or prejudicial to his own Constitution in particular, in order to preserve Health and prolong Life; or when impair'd, to restore it again, which are the chief Ends of the noble Art of Physick.

A general Method as to Diet, without regard to particular Constitutions, is absurd.

The most common Difference of human Constitutions proceeds either from the *solid* † *Parts*, or from the different State of the *Fluids*, (as I hinted in the first Part of this Book.) From the *former*, as to their different Degrees of Strength and Tension; for in some Constitutions they are too *lax* and weak, in others they are too strong and elastick; from the *latter*, as they consist of *Water, Spirit, Oil, Salts*, and earthy Parts, they differ according to the Redundance of the Whole, or of any of the said Ingredients in particular; and for which Reason they may be justly called either *plethorick, sanguine, phlegmatick, saline, oily* or *fat*, earthy or *melancholick* Constitutions.

The *Fibres* of the Solids in a human Body are too weak and lax, when the *Cohesion* of their Parts is so small, that they may be resolved or broken by a Force not much greater than what happens commonly in the Body of a healthy Person; and when the Weakness of the Vessels or Organs, proceeding from a too small *Cohesion* of their constituent Parts, renders them unable to discharge the common Functions of Life, consider'd in a State of Health.

And notwithstanding there is a Debility or Weakness of *Fibres* in *Infants*, yet it is no

P 2
Disease,

† The *Solids* of an animal Body are composed of small *Fibres* or *Threads*, which may be divided into still less; and this Division proceeds so far, as that at last they become so incredibly small, as to exceed the Power of Imagination; but Reason tells us that there must be an End at last.

Disease, because they lengthen by the *Influx* of the *Liquids*, which is the Cause of their *Growth*; but in grown Persons, when their *Fibres* cannot any more give way or stretch, they must either break or lose their Spring.

The common Causes of Weakness of the *Fibres* are, either a Defect or great Loss of the nutritious Juices; for if there is not a Sufficiency of Blood, the *Chyle* cannot be easily assimilated to nourish the *Fibres*. And People who lose great Quantities of Blood daily, by Blood-letting or otherwise, become *dropfical*; for when a *Fibre*, which is naturally elastick like a Bow, loses its Spring, it is only passive, and consequently useless to the Individual. Likewise Nourishment too glutinous or viscid to be subdued by the *concoc-tive Powers* of Digestion. Also a sedentary and lazy Life; for Motion or Exercise encreases the Circulation of the *Fluids*, and of Course an Application of the solid Parts together. People who live healthy in a dry Air, commonly fall into Diseases that depend upon weak and relax'd *Fibres* when in a moist one. Lastly, a natural Weakness from the Frame and Constitution of the Body, which is too often the Case.

The Sign of weak and lax *Fibres* are, a weak
The Signs of *Pulse, Paleness, flabby and soft Flesh,*
weak Fibres. *Palpitations* of the Heart, *Bloated-*
ness, Lassitude, and scorbutical Spots;
Coldness of the Skin, sour Belchings upon taking
 vegetable Food, or foul Eructations, like that of
 rotten

rotten Eggs, after eating animal Food, are also Signs of weak Fibres in the Organs of Digestion; likewise *Atrophy*, or a Decay of the Flesh, which indicates a Destruction or Obstruction of the Vessels that convey the Nourishment; and *Dropsies* proceed from a Weakness and Laxity of the *Fibres*, as having lost their *Elasticity* or Springiness to return the Fluid. And, in short, most of all the chro-nical Diseases proceed from Weakness and Laxity of the *Fibres*. Therefore the chief Intention of Cure must be to restore the Tone of the solid Parts; for all other Attempts, without this, will prove fruitless.

So that they who have weak *Fibres* ought to forbear all great Evacuations, especially Bleeding, *viscid* Substances, and all other Food hard of Digestion; they should likewise avoid a sedentary Life and moist Air as much as possible: They should eat often, but in small Quantities, of such Things as are nourishing, and of easy Digestion, as *Milk*, *Broth*, and *Jellies* made of Flesh Meat, *Rice Gruel*, *Panadas*, &c. And their Drink should be some of the light *Wines* of due Age and Maturity, mix'd with Water, for Water alone is too relaxing; or any good Wine with acidulated and Steel Waters, such as *Pymont* or *Spaw*, &c. They should likewise use in their Diet austere or acid Vegetables, if their Stomachs can tolerably bear them; such as *Pears*, *Plumbs*, *Quinces*, *Pomegranates*, *Barberries*, *Medlars*, *Sorrel*, *Purslain*, *Burnet*, *Tamarinds*,

rinds, Limons, Capers, or any other Pickles they like best.

The *Fibres* are too *strong* and too *elastick*, when the Cohesion of their Parts is in such a Degree of *Rigidity* or *Stiffness* as renders them inflexible to the Causes they ought to yield to, so as to preserve the Animal in Health; for too great *Elasticity* is not only a Quality by which they resist against being lengthen'd, but likewise they restore themselves, by that Means, with too great a Force and Pressure upon the moving Fluids, to the great Detriment of the Animal.

Rigidity of the Vessels or Organs is such a Degree of Cohesion as prevents their being expanded so far as is necessary to carry on the *vital Functions* *, as usual in a true State of Health. And the *Rigidity* of the *Fibres* must necessarily produce a *Rigidity* of the Vessels and Organs, because the *Fibres* make up their constituent Parts.

The Cause of such a State, besides the natural Frame and Constitution of the Body, is old Age, in which the *Fibres* are conspicuously *rigid* and dry; or too long a Course of such Diet as strengthens the *Fibres* too much; likewise hard Labour or Exercise.

The Signs of such a Constitution are, a hard, dry, hairy, scraggy, and warm

* *Vital Functions* are the muscular Action of the Heart, the secretory Action of the Brain, that of the Lungs, and of the Blood and Spirits, with their Motions through their proper Organs; and also the Veins, Arteries, and Nerves.

warm Body, without a Disease, with firm and rigid Muscles, a strong Pulse, Activity and Promptness in the *animal Actions* *; and such Constitutions are most subject to inflammatory Diseases.

Their Diet should be Things contrary to those already mentioned in the State of too great Laxity of the

The Regimen.

Fibres; that is, of such Things as are emollient and cooling, the *Pulps, Jellies, Juices, Mucilages, and Decoctions* of Vegetables that are softening and relaxing; such as all Pot-herbs of the emollient Kinds, *Lettuce, Chicory, Spinage, Beets, Carrots, Barley, Rice, Mays, Millet, Pease, and Beans*; animal Oils, such as *Cream, Butter, Marrow*, and all Things which relax or increase Fat, refraining always from Things season'd with Spice, and with as little Salt as possible, for Salt hardens the *Fibres*: Their animal Food should be boil'd Meat and Broths without Seasoning, preferable to any other Form: Their Drink should be *Water, Barley-water, Milk and Water, or Whey*; avoiding all fermented Spirits and austere Wines, and *Pickles* of all Kinds, all which are extremely hurtful to such Constitutions. Bathing in warm Water

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often

* Are such, as when perform'd, the Understanding conceives *Ideas* of Things united to that Action; or the *Will* is either concerned in exciting such Actions, or moved by them when excited; such are the Touch, Taste, Smell, Sight, Hearing, Perception, Imagination, Memory, Judgment, Reason, Passions of the Mind, and voluntary Motions.

often is beneficial to such, but immoderate Labour or Exercise very injurious.

How the *Fluids* act upon the *Solids* of a human Body, so far as to cause Diversities of Constitutions and Diseases, is accounted for in the following Pages, in treating of different Constitutions.

The Definition. A *plethorick Constitution* is such as abounds with too great a Quantity of laudable and good animal

The Cause. Juices; the Causes of which are strong Organs of Digestion and Chylification, a good Stomach, plenty of nourishing Diet, little Exercise, much Sleep, Laziness or want of muscular Motion, a moist Air, and a Suppression of some of the usual Evacuations, especially

The Cure. that of *Perspiration*. Therefore the Cure proper for this Constitution, is to avoid the Causes of it, just now mentioned, and use a more sparing Diet, greater Exercise, and proper artificial Evacuations, in order to restore the natural ones; for

This Constitution is subject to a Stoppage of the Circulation, by too great a Weight of Blood upon the Heart; Rupture of the Vessels, Suffocation, and sudden Death. But it is to be observed, that long Abstinence is not proper in the Cure of such a Constitution; for in that Case the most fluid Parts of the Blood fly off, and the grosser remain in the Vessels. Likewise frequent Bleedings, in small Quantities, often increases the Disorder, by augmenting the Force of the Organs of Digestion,

gestion, and by that Means promote Fatness.

Persons of such a Constitution should always avoid all oily and too nourishing Substances; therefore Vegetables, being less nourishing than animal Food, are more proper; and, by the same Rule, to feed upon Fish preferable to that of Flesh-meat.

A *sanguine Constitution* is that *Definition.* which abounds with a great deal of good Blood; and the common outward Sign of such a Constitution, is a florid Colour in the Complexion, a Ful- *Diagnostick Signs.* ness and Blueness of the Veins, and a particular fair and lively Colour of the Skin, without Paleness. Those of a sanguine Constitution are subject to frequent Bleedings at the Nose and other Parts, and Inflammations of the Lungs, Impostumations, and often to *scrophulous* or *evily* Diseases.

The Blood is the most universal Fluid in the animal Body, from which all the rest of the Juices are derived; for the red Part of it differs from the *Serum*, the *Serum* from the *Lymph*, the *Lymph* from the *nervous Juice*, and that from the several other Humours that are separated in the Glands.

The red *Globules* of the Blood are *elastick*, and one *Globule* will break into six small ones, and then turn yellow; those yellow *Globules* break into others less, and so proceed till they become white and transparent at last; for the Vessels which admit the smaller *Globules* to pass, cannot admit the larger without a Rupture,

Rupture, or some other Disorder. So that as the Blood circulates thro' the smaller Channels, the Redness will disappear more and more.

A strong and free Motion of the Blood will occasion a Floridness upon the Skin of such Constitutions; for such a strong Motion will force the red Part of the Blood into more capillary Vessels. Besides, another Cause commonly concurring is the greater Transparency of the Vessels, occasioned by the Delicacy and Thinness of their Coats, which is evident from the large Veins of *sanguineous Constitutions* appearing blue and transparent, by the Colour of the Blood circulating in them.

And if the Vessels are in a State of too great *Rigidity*, so as to be inflexible, a strong Motion of the Blood will occasion a Rupture of them, with Hæmorrhages; especially in the Lungs, where the Blood is more abundant, and the Vessels more delicate: But if the Vessels yield instead of bursting, the Person is subject to the Inconveniences of a faulty Circulation; that is, the Blood forces into the Vessels appointed to carry *Serum* or *Lymph*, from whence proceed Inflammations and Obstructions. And as the Delicacy and Thinness of the Vessels run through the whole Body, it must affect the Glands and *Lymphatics*, as well as the Blood-vessels; so that such Constitutions must be subject to glandulous and *evily* Tumours, and Ruptures of the *Lymphatics*.

The

The Diet of such Constitutions should be cooling and relaxing, *The Regimen.* with Moderation in the Quantity of all Things. They ought to avoid every Thing that accelerates the Motion of the Blood, as violent Exercise and Watching; likewise they ought to abstain from the Use of all Things that abound with an *acrimonious Salt*, as *Onions, Garlick, Leeks, Mustard*, and the hot Herbs used in Seasoning, and all Spices in general; but Vinegar is exceeding useful to such as will use it constantly with their Food, for it will very much abate their florid Colour.

For more particular Directions, as to the Diet proper in this Constitution, I refer the Reader to the Diet prescribed for the Cure of *Rigidity* and *Elasticity* of the *Fibres*, which answers this Intention in every Particular.

A *saline Constitution* of the Fluids in an animal Body, is either *acid*, *A Saline Constitution.* *alkaline*, or *muriatick* †.

It has been proved in the foregoing Chapter, that the Juices of a sound Animal are neither *acid* nor *alkaline*; for all the *Solids* and *Fluids* of such, even fed with *acescent* or *acid* Substances, yield no *Acid*; because the *vital Force* of such Animals converts the acid Substances they take in Food, into soft nutritious animal Liquids of their own Nature. A Cow fed with *Daisies, Trefoil, and Sorrel*, will give Milk in which there is not the least *Acidity*; but if the *vital Force* is weak, it is not sufficient

† *Briny.*

sufficient to subdue the *Acidity* of the Food taken in.

Therefore as there is no *Acid* naturally in a sound Animal Body, but what must be taken in by Food ; so that if it be not subdued in the Passages of the *Chyle*, it will get into the Blood ; and if there is not a due Quantity of Blood, and a sufficient Strength of Circulation to subdue it, it will infect the *Fluids*, so as to produce various Distempers.

The Effects of a *Constitution* subject to *Acidity*, are four Belching, a craving Appetite, Sourness in the Stomach, with Pains; *Green-sickness*, the Case of a great many Girls craving after earthy Substances, such as *Clay*, *Chalk*, *Meal*, *Cynders*, &c. *Colick Pains* about the Navel, *Dry Gripes*, such as those in the *West-Indies*, chiefly occasioned by too great Quantities of the Acid of Lime-Juice in their *Punch*, with a great deal of other *Acids* in their Seasonings. The *Colicks* in Infants proceed from *Acidity*, and the Air expanding itself in the fermenting Food in the Stomach ; the true Signs of which are a sour Smell of the Excrements, *acid* Sweats, *Paleness* of the Skin, and oftentimes *Convulsions*, from *Acidity* passing into the Blood, and affecting the tender *Fibres* of the Brain. *Eruptions* of the Skin, such as *Scurvy* and *Itch*, and even *Leprosies*, are produced by feeding much and often upon *acid* unripe Fruits, and mealy Substances that are *acescent*.

The

The most subject to this Disorder are Children, by reason of the Weakness of their Fibres and Digestion, and a Milk Diet; likewise such as lead a sedentary Life; and others again, who eat and drink much Bread and Wine, and *acid* Vegetables; and lastly, Artificers, who deal much in the Preparations of Acids.

As *Acidity* is not the natural State of the Fluids in an animal Body, but introduc'd into the Habit by Food; so it is to be cur'd by Aliment of a contrary Quality, for which the Reader is referr'd to the Diet proper for *acid Acrimony*, in the foregoing Chapter, Page 212.

All anti-acid Medicines being ineffectual without a proper and continued Diet of the same Nature, here I must observe, that an Abstinence from strong fermented Liquors is absolutely necessary in the Cure of this Disorder; and likewise that *Acidity* in the Infant may be cur'd by a Flesh-Diet in the Nurse.

An *alkaline Constitution* of the Fluids in a human Body is opposite to the former, and abounds with *alkaline Salts*, the Nature and Quality of which I have explain'd in *Note **, Page 165, which see. And tho' no Animal unputrify'd, when burnt, produces any *alkaline Salt*, yet being putrify'd, it produces a *volatile Alkali*; so that in a sound Animal no true *Alkali* is found, as I have observ'd

A Constitution subject to an alkaline Acrimony.

in

in the preceding Chapter ; but when an Animal degenerates from a true State of Health, by such Diseases or Food as increases the Attrition and Heat of the Fluids, the animal Salts that were before mild and benign, now become almost of an *alkaline* Nature ; for sound human Blood when first drawn, is so mild as not to make an Eye, or a fresh Wound smart ; but let it stand in a Degree of Heat equal to that of a human Body, and it will grow *fætid* in three Days time, and produce a volatile rancid Oil, as likewise a volatile *alkaline Salt*, which will ferment with *Acids* ; so that the Blood in the Vessels, after it has passed thro' almost infinite Degrees of Circulation, may come to that State at last, which is the Case in *pestilential* and *malignant Fevers*, where neither the Strength of Nature or Art can prevail to save the Life of the Individual. All animal Substances being depriv'd of Life, and exposed to the Air, turn presently *alkaline* of their own Accord, and consequently will soon putrify.

Causes. The Causes of such a Constitution are commonly a plentiful and constant Use of animal Diet, such as Fish and Flesh, and all Vegetables which abound with an *acrimonious* Salt, such as *Mustard*, *Onions*, *Leeks*, *Spices*, and all hot and pungent *Antiscorbuticks*, &c. likewise a plentiful Use of Salts in general, for all animal Salts are *alkaline* ; and tho' Rock and Sea-Salts are of a mix'd Nature, yet they increase the Disorder.

All

All Animals that live upon other Animals have their Juices more *alkalescent* than those that live upon Vegetables, and for this Reason Fishes are more *alkalescent* than *terrestrial* Animals, for they putrify sooner in the open Air; and no Person is able to support a Diet of Flesh and Water without *Acids*, such as Salt, Vinegar and Bread, without falling into a *putrid Fever*.

Another Cause of this Distemper is a vigorous Action of the Vessels thro' which the Fluids circulate; for which Reason the strong and healthy, and young People, are more in Danger by pestilential Fevers, than the weak and old; for violent animal Motion by Attrition produces this *alkaline* State.

The Symptoms of such a Constitution in any great Degree, are *Heat*, *Thirst*, *foul Belchings*, *Foulness* of the *Tongue* and *Palate*, a *bitter* and *hot* Taste in the Mouth, *Sickness*, *Loathing*, *bilious Vomiting*s, *Stools* with a *cadaverous Smell*, *Pains* in the *Belly*. Besides, such a State dissolves the Blood, and disposes it to Putrefaction, hinders Nutrition, for no Chicken can be hatch'd of a rotten Egg; and likewise the Blood turning *Acrimonious*, corrodes the Vessels, producing *Hæmorrhages*, *Eruptions* on the Skin, *dark*, *livid*, *Lead-colour'd*, and of a *gangrenous* Nature, and likewise a *hot Scurvy*, and almost all Distempers of the Inflammatory Kind.

The Regimen. The Diet of such Persons ought to be a plentiful Use of acid Substances, such as much Bread, and Seasoning of Vinegar, and all other *Acids* without Spices, and live much upon Food made of Grain or mealy Substances; in short, they should live on such a Diet as is describ'd for an *alkaline Acrimony* in the foregoing Chapter.

Plethorick Constitutions are apt to fall into this *alkaline* State of the Fluids, which is more hurtful than that which proceeds from *Acidity*; for the *Bile* being redundant, is the strongest *Anti-acid*, and when it is raised to a high Degree, and acrimonious, is sufficient to produce all the terrible Symptoms of *malignant* and *pestilential* Fevers, as is manifestly evident from the Experiments that were made at *Marseilles* in Time of the *Plague*; and nothing subdues the Acrimony of the *Bile* more than the acid Diet already mention'd, so that by a timely Use and Application of such Remedies, many fatal and dangerous Diseases might be prevented.

A briny State of the Blood. A *muriatick* or *briny* State of the Fluids, which is common among *Sailors*, is commonly introduc'd into the Habit of the Body by too great Quantities of Sea-Salt; and its usual Symptoms are a Salt Taste in the Spittle, Itching, and red Breakings out of the Skin, a *lixivial* Urine with a fat Substance swimming on the Surface of it.

The

The Cure of this Disorder is performed by the constant Use of a *The Cure.*
 Diet of fresh and unsalted Things, watery and cooling Liquors *acidulated*; *mealy* and *emollient* Substances, with a plentiful Use of *acid Fruits*; *Sower Milk*, *Butter-Milk*, avoiding all *Spices*, and the hot *Antiscorbuticks* of the pungent Kind: In a Word, the Diet ordered in the *Alkaline Acrimony* in the foregoing Chapter is proper in this Case.

A *phlegmatick Constitution* is such a State of the Fluids, wherein *Phlegm* *Definition.*
 or a *cold, viscous* watery Humour predominates; and the Causes of it are, commonly viscid Food, such as *The Causes.*
mealy Substances unfermented, and taken in great Quantities; for the Flower of all Sorts of Grain, mix'd with Water, make a Paste that sticks like *Glue*, having an Oil in them which causes a Cohesion of their Parts together; the frequent Use of unripe Fruits; likewise great Loss, or Want of Blood, which preserves itself and the Food, by constant Motion, from Coagulation; a Weakness and Indigestion in the alimentary Passages, by which the Food is rendered slimy and viscous; a Defect, or Want of *Bile*, which is the principal Resolvent of the Food; and a Stagnation of the Fluids, from a Weakness of the Instruments of Excretion; for if the *Phlegm* stagnates, it must grow viscid by the Heat of the Body.

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Likewise Tumours and Inflations of the Belly, with Paleness, are Signs of a *phlegmatick Constitution*; as when a Child grows pale, and his Belly swells, which happens to those that are *rickety*, there must be certainly tough *Phlegm* in the *Intestines*, which shuts up the Mouths of the *Lacteals*, and prevents the Nourishment from getting into the Blood. But no Cause whatever produces a *Viscidit*y in the human Fluids, more than a sedentary Life, and Laziness, and no Remedy more effectual than good Labour and Exercise.

The Cure. Cold *phlegmatick Constitutions* ought to use constantly an *alkalescent* Diet; likewise well fermented Bread, and fermented Liquors; for Fermentation removes the *Viscidit*y of all mealy Substances; and high seasoned Food is proper for them; likewise *Spices, Salt, Garlick, Leeks, Onions, Thyme, Rosemary, Savory, Marjoram, Basil, Mustard*, and all the hot and pungent *Antiscorbuticks*; for all these being highly *alkalescent*, exalt the Bile, which is necessary in this Case, whereby the *Viscidit*y of both the Aliments and Fluids of the Body is dissolved. Their animal Food, both Fish and Flesh, should be nourishing, and easy to be digested; their Drink should be good fermented Liquors, hot mineral Waters, and generous good Wines, such as will put the Blood into a vigorous Motion. But for farther Satisfaction herein, see what is said of *alkalescent* Sub-

Ch. VIII. thro' the various Stages of Life. 243
Substances, both animal and vegetable, in the foregoing Chapter.

A *fat* or *oily* Constitution is so very well known to every one, as *A fat Constitution.* to the Symptoms, that it needs no Description, and falls in with the *plethorick* and *phlegmatick* Constitutions already describ'd; it being but one *Species* or Sort of Corpulency, as there is often Bulk without Fat, from a great Quantity of muscular Flesh, which is the Case of robust People; for an Animal in the Course of hard Labour appears to be very little else than Bones, Vessels and muscular Flesh; but let the same Animal remain long at Rest, with tolerable good Food, it will probably double almost its Weight and Bulk, and this additional Surplus is nothing but Fat or Oil.

The common Causes of this Disorder, besides a particular Family *The Cause.* Disposition of the Body are, *first*, strong Organs of the first Digestion, and a *Laxity* of the Fibres of the circulating Vessels, especially those about the *Membrana Carnosa* †; for by the Action of those *Fibres* of the Vessels upon the Fluids, if they are duly *elastick*, the oily Parts of the *Chyle* are intimately mixed with the Blood; but when this Action is not strong enough, and that the *Chyle* is

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* The *fleshy Membrane*, is a fat Sort of a Membrane, in some Parts thick and musculous, in other Parts thin with many Ducts of Fat in it, and covers all the nervous and fleshy Parts of the Body, and is interwoven with an infinite Number of Blood-Vessels.

extremely redundant, then the thicker Oil is never intirely subdued by Circulation, and so turns Fat. 2dly, Great Quantities of oily Nourishment, *Milk, Butter, and oily fermented Liquors.* 3dly, All Things which produce Coldness in the Skin, so as to stop *Perpiration*, by which Means the *fat* or *oily Parts* are congealed, which Heat dissolves and attenuates; for the Inhabitants of cold and moist Countries are generally fatter than those of warm and dry Climates. But the most common Cause of all is, too great Quantity of Food, and too little Motion or Exercise; that is to say, *Gluttony* and *Laziness*, for which a spare Diet and Labour is the best Remedy.

Fat or *Oil* in all Animals, in due Proportion, is very necessary for both the Motion and Nourishment of the *Fibres*; but too great Abundance of it is very prejudicial to the human Constitution; for it is an Impediment to the Motion of the Joints, rendering them more heavy, by filling the Spaces occupy'd by the Muscles when they contract and swell; it subjects them to all the Distempers depending upon a defective Motion of the Blood; and as the Want of a due Quantity of Motion of the Fluids increases *Fat*, so the Disease seems to be the Cause of itself.

It endangers them in all inflammatory Diseases; for a Fever resolves many Things which do not circulate, and among others the *Fat*, which mixing with the Blood, becomes volatile.

tile, and causes an *Acrimony* much more dangerous than the *saline* one ; for Salts can be dissolved and diluted with Water, but Oils cannot : And it is manifest that *Fat* is dissolved by Fevers, if we consider the great Loss of it which People undergo in such Diseases. But among the many Inconveniencies and other bad Effects of a *fat* or *oily Constitution*, there is one Advantage to such as arrive at an advanced Age, that they are not subject to a Stricture and Hardness of *Fibres*, which is the Effects of old Age.

As *Gluttony* and *Laziness* are, for *The Regimen.* the most part, the Causes of a *fat Constitution*, such People ought to eat sparingly, sleep little, and use much Exercise ; in which the Cure of such a Disorder chiefly consists.

Substances which heat moderately, abounding with acrid and pungent Salts, are proper in this Case ; such as *Horse-Radish*, *Mustard*, *Garlick*, *Leeks*, *Onions*, *Spices*, and all the *aromatick* Plants us'd in Seasoning ; likewise *Saffron*, all Seeds that expel Wind, Meats well season'd with *Salt*, *Pepper* and *Vinegar*, are all proper to dissolve *Fat*, and carry it off by Perspiration ; but the only Inconvenience they have, is, that they create Thirst, whereby great Quantities of Liquids are drank, which increase the Disorder, by diluting and relaxing the Solids too much.

They should avoid all oily Nourishment, and use Honey, ripe Garden Fruits of an acid

Taste, and the astringent sub-acid Vegetables mentioned in the Cure of a weak and lax State of the *Fibres*, in the Beginning of this Chapter; for the *Fibres* of fat People are commonly too lax. Their Drink should likewise be the same as is there mentioned, to which I refer the Reader.

Tea and Coffee are also useful, as they dilute and stimulate moderately; but the frequent Use of oily spirituous Liquors, as Rum, Anniseeds, &c. is extremely hurtful, because they increase *Fat*; a moist Air is likewise prejudicial to fat People, by relaxing the *Fibres* and stopping *Perspiration* both *sensible* and *insensible*.

Definition. An *earthy Atrabilarian*, or *melancholy Constitution*, is such a State of the Fluids, wherein the spirituous and most fluid Parts of the Blood are dissipated, so as to leave the *Salts*, *Earth*, and grosser *Oil* in too great a Proportion in the Body.

Diagnosticks. The *Signs* of such a State, or a Tendency thereto, are known by *Darkness*, or *Lividness* of the Complexion, *Leanness*, *Dryness* of the Skin, and a quick penetrating *Genius*, with a slow *Pulse* and *Respiration*; *Obstructions* of the Belly, and a Difficulty of being purged.

The Causes. The *Causes* of it are all such as expel or evaporate the most volatile and subtile Parts of the Blood, and fix the rest: As great Applications of the Mind to some

some Objects or other, such as may produce great Joy or Sadness, both which equally expel and dissipate the Spirits; likewise great Exercise or Labour in hot Weather, with unquenched Thirst; also Food of hard Digestion, such as dry'd and salted Fish or Flesh, unripe Fruits, unfermented mealy Substances, or the immoderate Use of spirituous Liquors.

The Effects of such a Constitution of the Fluids are, *Stagnation*, *The Effects.*
Obstructions, Acrimony, Putrefactions, Viscidity, and an imperfect *Secretion* of the Gall, a defective Circulation in the Vessels, especially in the lateral Branches appointed for the Separation of the more fluid Parts; hence arise *viscid* and insufficient Secretions in the Glands: Likewise the Motion of the Blood through the *mesenterick* and * *celiac* Arteries being too slow, produce various Disorders in the lower Belly and † *hypochondriack* Regions; hence Persons are denominated *Hypochondriacal*. And the Signs of most of these Disorders of the lower Bowels, arising from too slow a Motion of the Blood through the said Arteries, are, a Sensation of Weight, Anxiety, Repletion, and a bad Digestion, from whence different Sorts of Food acquire such a State in the alimentary

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Passages,

* Arteries in the lower Belly needless to be described in this Place.

† Are the two Regions lying on each Side of the Tip or Extremity of the Breast-Bone or *Sternum*, and those of the Ribs; which contain in one the *Liver*, and in the other the *Spleen*. Hence Disorders of those *Viscera*, especially of the *Spleen*, are called *hypochondriacal Affections*.

Passages, as they affect of their own Nature; that is, *acid*, if the Diet be of acid Vegetables; and *alkaline*, if of animal Substances, especially *Fat*, which remains rancid, so as that the Spittle will flame in the Fire sometimes; and all this Indigestion owing to the Inactivity of the Gall, which likewise occasions a Costiveness of the Belly, and a Difficulty of being purged.

This State of the Fluids will at last affect the tender Vessels of the Brain, by the *Viscidit*y of the Matter impacted in them, and thereby endanger the *Imagination*; and likewise produce Corruption in the Bowels of the lower Belly at last.

Hence it is evident, that such a Disorder is not to be removed by active Remedies *, no more than *Pitch* or *Dirt* sticking to a *Skain* of Thread is to be taken away by Violence; but the *Viscidit*y should be gently attenuated, diluted, and carried off gradually, by a proper continued Course of Diet, avoiding always all heating Substances, which still evaporate and dissipate the volatile and fluid Parts more; therefore Waters impregnated with some of the pungent Salts, as that of *Nitre*, *Tartar*, &c. are found to be of great Effect in this Disorder.

Their

* Are such Medicines as produce sudden Alterations in the Body, by their penetrating and stimulating Qualities, acting upon the Fluids or Solids, or upon both, either inwardly taken, or outwardly applied.

Their Diet should be light, easy of Digestion, moistening, and resolvent of the *Bile*, such as *Honey*, the *The Regimen.* Juices of *ripe Fruits*, *emollient Pot-herbs*, light Broths of animal Food, *Lettuce*, *Spinage*, *Cichory*, and *Dandelion*; and their Drink ought to be *Water*, *Barley-water*, and *Whey*. For farther Instructions herein, see the Diet directed for the *Rigidity* of the *Fibres* in this Chapter, which is likewise very proper in this Case.

One Thing to be observed is, that the Diet ought to be contrary to the particular *Acrimony* residing in the Fluids, which might have occasioned the Disorder; for if it proceeds from *Acidity*, then an animal Diet is altogether proper; if from an *alkaline Acrimony*, the contrary Method must be used; which may be easily distinguish'd, by observing what has been already said of *acid* and *alkaline Constitutions*, to which I refer the Reader.

As there is a continual Diffipation or Waste in all animal Bodies, insensibly; so the frequent Repetition of *Meat* and *Drink* is necessary, not only for repairing the Fluids and Solids, but likewise for preserving the Fluids from a putrifying *alkaline* State, which they would acquire by constant Attrition, without being soon and sufficiently diluted with fresh *Chyle*. Hence it appears, that long Fastings or Abstinence may be the productive Cause of great Distempers, especially in hot and *bilious*

bilious Constitutions ; and very prejudicial to acid Constitutions, occasioned by the uneasy Sensation and Vellication produced in the Stomach.

Therefore the Quantity of Food necessary to preserve our Bodies in a due State of Health and Vigour, ought to be divided into *Meals* at proper Intervals of the natural Day, that the former Food may be digested before any more be taken in, and at such a Distance from Bed-time that our Digestion may be almost finished before we sleep ; by which Method neither the Organs of Digestion, nor the Blood-vessels will be overloaded, nor the Fluids too long deprived of a fresh Supply of nutritive *Chyle*.

Hence the grand Secret of Health consists in keeping an *Æquilibrium* † between the *Fluids* and *Solids* ; for when the *Fluids* move so equally, that they do not press upon the *Solids* with a greater Force than they can bear ; and, on the other hand, when the *Solids* resist and act upon the *Fluids* so equally, that there is no uneasy Sensation, the Person is then in good Health ; and whatever is in our Food or Actions that destroys this *Æquilibrium*, either by relaxing or contracting the Solids too much, or by attenuating or rendering the Fluids too viscid or acrimonious, must produce the Effects already mentioned under each of those particular Heads, which see.

From

† An exact or due Ballance.

From what has been hitherto said of the Nature and Effects of *Aliment*, as also of the Nature and Difference of Constitutions in particular, with the Diet proper for each, it will be as easy to determine Rules of Diet in the different natural healthy States, as in the *morbid* or sickly States of human Bodies; therefore I thought it both useful and necessary to lay down here some general easy Rules, for the Benefit of those who value Health and long Life; but with this Caution, that Regard must be always had to the Nature of the Constitution in particular.

I. *Infancy* requires a thin and copious nourishing Food, such as lengthens their Fibres, without breaking or hardening them, by reason of their Weakness and State of growing; so *Milk* answers this Intention best.

II. The *Solidity*, *Strength*, and *Quantity* of the Food, ought to be in Proportion to the Strength of the Solids, Labour, and Exercise of the Body; for such as labour and exercise much, have their solid Parts stronger and more *elastick*; therefore they require stronger Food, and more in Quantity, than those that are in their declining Age, or those that lead a sedentary or studious Life.

III. Youth being still in the State of Growth, their Diet ought to be emollient and relaxing, plentiful, and without *Acrimony*.

IV. In the State of Manhood the Diet should be solid, with a sufficient Degree of *Viscidit*y;

Viscidities; and their chief Drink Water, with a Quantity of fermented Liquors at Times, proportioned to their natural Constitutions.

V. Ancient People require a Diet resembling that of Children, often repeated, and little at a Time, emollient and diluting, with a little Wine sometimes; because in old Age the *Fibres* harden, many Canals or Vessels are abolish'd, and the Solids grow together; from whence arises Dryness, Weakness, Immobility, Debility of the *vital Force* of Digestion, Loss of Teeth, and Depravation of chewing, which terminate in Death at last.

VI. Excess in Meat and Drink is to be avoided; for a little Food well digested and assimilated, preserves the Body stronger and more vigorous, than Superfluity.

VII. We should not eat, because the customary Time for it is come, unless our Appetite be so too; for to load the Stomach with a fresh Supply upon a Semi-digestion of the former Meal, causes *Cruditie*s, and a foul Stomach, which must overload the Blood, and thereby produce Diseases.

VIII. It is better to eat twice a Day with Moderation, than to make one over-large Meal, tho' one abstains double the usual Time for Compensation; however, if one transgresses at any Meal, let such abstain from the next, or let it be a very slender one.

IX. Variety of Meats, and made Dishes, destroy a Multitude of People; for they prolong Appetite far beyond what Nature requires,
and

and by that Means over-charge the Stomach. Besides, different Meats have different Qualities, and some are sooner digested than others; whence arise Crudities, and a depraved Digestion: Therefore we ought to avoid Feasts and Banquettings as much as possible; for it is more difficult to refrain from good and delicate Cheer when present, than from the Desire of it when away.

X. A temperate Diet preserves from Diseases; for such are seldom ill, but when they are, they bear it better, and are sooner recovered. *2dly*, It lengthens Life, and mitigates the Agonies of Death. *3dly*, It arms the Body against external Accidents, such as Heat, Cold, Labour; and if afflicted with *Wounds*, *Dislocations*, or *Bruises*, they are much sooner and easier cured. *4thly*, It maintains the Senses intire and vigorous, and moderates Peoples Passions and Affections. *5thly*, It preserves the Memory, sharpens the Wit and Understanding, and allays the Heat of Lust.

XI. *Galen*, recommending a temperate Diet, says, that those of a weak Constitution from their Mother's Womb, may attain to an extreme old Age, by Help of a sober and moderate coarse Diet; and that too without Diminution of Senses or Sickness of Body; and says farther, that tho' he never had a healthy Constitution of Body from his Birth, yet by using a proper Diet after the 27th Year of his Age, he never fell into any Sickness,

unless now and then into an *Ephemera*, that is, one Day's Fever, occasioned by Fatigue or Weariness. And it is very well known, that *Galen* lived to an hundred Years of Age.

XII. In the *Winter* and *Spring* we require a greater Quantity of solid Food, and less Drink, than in the *Summer* and *Autumn*; because in the cold Season our Stomachs are hottest, and we sleep a great deal more; for as the Cold increases, so our Heat for the most Part recedes to the *central* Parts of the Body. And the Reason we require less Drink in *Winter* is, that then our Bodies are moister, like the Seasons; and likewise, that the Cold hinders the watery *Vapours* to be perspir'd, and so turn into Humours in the Body. But in *Summer* what is wanting in Meat or solid Food, may be taken in Drink, and moist cooling Nourishment; for then the Body is dry, and the inward Heat is distributed thro' all the Parts thereof, and Perspiration is so considerably increased by the external Heat, that the watery Vapours or *Effluvia* are exhal'd and carry'd off thro' the Pores.

XIII. The same Rules for eating serve also for drinking, the chief Intention of which is to allay Thirst, to moisten and convey the Food in the Stomach, and the Nutriment thereof into the respective Parts of the Body; to dilute the Blood, and dissolve the superfluous Salts, and carry them off both by Perspiration and Urine. But for farther Satisfaction

faction herein, see the Particulars of the Use and Intentions of Drink, in the latter End of the foregoing Chapter.

Here I must observe, that moist Food, such as *Broths, Pottage, Soup, and boiled Meats*, require little Drink, and the solid only a Sufficiency to moisten and convey it into the Stomach, and prevent Obstructions; therefore they who drink much at Meals, especially strong Liquors, incur a double Inconvenience; for *first*, by causing the Food to float in the Stomach, which ought to reside in the Bottom, they hinder Digestion, and by moistening the upper Orifice thereof too much, by which means it is kept open, it thereby occasions Vapours and Fumes to ascend and disorder the Head. *Secondly*, it causes the Aliment to pass too soon out of the Stomach, crude and indigested; whence arise Fluxes in the Bowels, and *putrid Crudities* of the Blood in the Veins and Arteries.

XIV. It is very prejudicial to eat or drink too much, or fast too long, or do any thing else that is preternatural; for whoever eats or drinks too much, must be sick, or vitiate his Juices at last.

XV. Growing Persons have a great deal of natural Heat; therefore they require a great deal of Nourishment, otherwise the Body will gradually waste.

XVI. *Hippocrates* says, that a Person cannot be healthy, and digest his Food well without Labour, and that the Quantity and
Quality

Quality of Diet must bear a due Proportion to the Labour.

XVII. Young, hot, strong, and labouring People, may feed on Meats that afford a hard and gross Juice, such as *Beef, Bacon, powder'd Flesh and Fish, hard Cheese, Rye-Bread, and hard Eggs, &c.* which may nourish slowly, and be digested by Degrees; for if they did eat things of light Nourishment, either their Meat would be too soon digested, or else converted into *Choler*.

XVIII. When a Person is sick or distemper'd, his Meats should be of contrary Qualities to his Disease; for Health itself is but a kind of *Temper* gotten and preserv'd by a convenient Mixture of *Contrarieties*.

XIX. Fat Meats are only good for dry Stomachs; for in *sanguine* and *choleric* Stomachs they are soon corrupted; and in *Pblegmatics* they procure Looseness, and hinder Retention.

XX. Such as are of hot Constitutions, should abstain from violent Exercises, use Bathing in tepid Water, feed upon *Mays, Pot-Herbs*, and a cooling moist Diet.

XXI. The Quantity of Food that is sufficient, the Stomach can perfectly concoct, and answers to the due Nourishment of the Body; hence it is evident, that we may eat a greater Quantity of some Meats than of others of a more hard Digestion.

XXII. The Difficulty lies in finding out an exact Measure; but eat for Necessity, and not
for

for Pleasure, for *Lust* knows not where Necessity ends.

XXIII. If a Person is dull and heavy after Meat, it is a Sign he has exceeded the due Measure; for Meat and Drink ought to refresh the Body, and make it cheerful, and not to dull or oppress it.

XXIV. If we find those ill Symptoms, we are to consider, whether too much Meat or Drink occasions them, or both, then we ought to abate by little and little, till this Inconvenience is remov'd.

XXV. Pass not immediately from an irregular Life to a strict and precise one, but by Degrees; for ill Customs come by Degrees, and are to be wore off gradually; for all sudden Alterations in Extremes, either of Repletion, Evacuation, Heat or Cold, are dangerous.

XXVI. *Acids* taken in too great Quantities, especially such as are austere, as unripe Fruits, produce too great a Constriction of the Fibres, and thicken the Fluids; hence *Pains, Rheumatism, and Gout, Paleness, Itch*, and other *Eruptions* of the Skin.

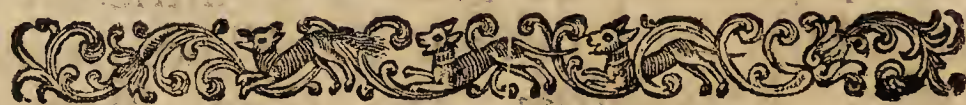
XXVII. *Spices* taken in too great Quantities produce *Thirst, Dryness, and Heat*, quicken the Pulse, and accelerate the Motion of the Blood, and dissipate the Fluids; hence *Leanness, Pains* in the Stomach, *Loathings*, and Fevers.

XXVIII. *Strong Liquors*, especially *distill'd Spirits*, taken in great Quantities, intoxicate,
R contract,

contract, harden, dry, and stimulate the Fibres, and coagulate the Fluids; they likewise corrode and destroy the inward Coat of the Stomach and Intestines.

XXIX. A Diet of viscid Food, such as unfermented mealy Substances, *Peas, Beans, Lentils, &c.* creates *Flatulency*, and *Cruditities* in the Stomach, *Obstructions* in the small Vessels of the *Guts*, and in the Mouths of the *Lacteals* and *Glands*: Hence *Tumours* and *Hardness* of the Belly, *Paleness* of the Skin, and *Viscidities* in the Fluids.

XXX. An oily Nourishment relaxes the Solids, and particularly the Stomach and Intestines; it creates foul Belchings, Loathings, oily and bitter Vomitings; obstructs the capillary Vessels, by hindering the Entrance of the watery and fluid Part, with which it will not mix; it produces Thirst and Inflammations.



CHAP. IX.

Of Sleeping and Waking.

SLEEP is a Cessation of the external *Senses* from Action; for, when waking, we walk, talk, move this or that Limb, &c. but in a natural or undisturb'd *Sleep*, there is

nothing of all these Actions; that is, when awake we perform several Motions by the voluntary Contractions of our Muscles; when asleep, those Muscles are only contracted, whose Action is involuntary, or does it by a Habit, without the Intervention of the Reasoning Faculty; such are the muscular Actions of the *Heart, Breast, Lungs, and Arteries, &c.* so that at this Time there is a kind of *Relaxation* of the moving Fibres of the several Members of the Body. And this is one great Design of *Sleep*, to recover their former Force to the Parts overstretch'd by Labour or Motion; for when we compose ourselves to Rest, we must put our Body into that Posture which favours most the particularly weary'd Limbs.

In the next Place it is very evident, that in *Sleep* there is not only a Rest and a Suspension from acting in most of our bodily *Organs*, but likewise of our *Thinking Faculty* too: That is, a Cessation from such Thoughts as, when awake, we are exercised about, which we reflect upon, and Will to imploy our Mind with.

For tho' Dreams are Thoughts, yet they are imperfect and incoherent ones; and are either so faint and languid Representations, as to be consistent with our *Sleep*, or else, if they be strong and lively, they are the Interruption and Disturbance of it.

From whence it will follow, that the Motion of the *arterial Fluid* must be more se-

date, even, and regular, in the Time of sleeping than waking; for besides the various Alterations it receives in this latter State, from the several Passions of the Mind, the very Contractions of the Muscles themselves, in the Exercises of the Body, will forward its Course differently and more unequal; whereas in *Sleep* the Motion of the *Heart*, *Arteries* and *Veins* is stronger, slower, more equal, and full; likewise *Respiration* is deeper, stronger, slower, and more equal, by which Means the Blood circulates and digests more commodiously, and *Secretion*, *Perspiration*, and the Distribution of Nourishment are more successfully carried on; the Humours circulating quicker through the Blood-vessels and the Parts near the *Heart*, but slower through the Sides of the Body, and the remote Parts, as well as the Muscles.

Hence it also comes to pass, that the *Influx* of the *nervous Fluid* into the Organs of the Body, as also its *Reflux* towards the *Brain*, is in *Sleep* either none, or very inconsiderable; for it is *muscular Action* and *Sensation* that required this *Fluid* to be thus determined this Way or that, which are in this State hardly any: And yet, by the Arrival of Blood at the *Brain*, this Juice will still be separated there, fit to be deriv'd into its *Tubes* and *Canals*; so that by this Means there will be a new Production, or a kind of Accumulation or laying up in Store, of *Spirits*,

rits, in order to perform our *animal Functions*.

Thus we may look upon the Time of *waking* as the Time of wearing out, or the Destruction of the animal *Fabrick*; and the Time of *Sleep*, as that in which it is repaired and recruited; not only upon account of what has been just mentioned concerning the *nervous Fluid*, but also with regard to all other Parts of the Body, as well fluid as solid: For Action must necessarily impair the *Springs* and *Organs*; and in Motion something is continually *abraded* or fil'd off from the contractile Fibres, which cannot otherwise be restored, than by their being at Rest from *Tension*. Besides, the regular and steady Course of the Blood, as has been observ'd, in *Sleep*, is by far more fit and proper for Nutrition, or an *Apposition* of Parts to the Vessels, which an uneven Hurry of Nourishment is more apt to tear off and wash away.

Sleep is occasioned, promoted, and encreased by eating and drinking, in removing the *Stimulus* or painful Sensation of Hunger and Thirst, when the *Stomach* is empty, or by drinking plentifully, especially of strong Liquors; but some cannot sleep for a long Time when they drink much, because the Spirits are thereby too much heated and enraged.

It is also encouraged by much or long continued Labour, the Spirits being too much

dissipated and exhausted. In like manner, after the taking of *Opium*, or other sleepy Things, we are disposed to sleep; because they seize the *Spirits* by their volatile *Oleosity*; also a quiet Disposition of Mind; a Body free from Motion, and unaffected by external Objects; by Excess of Heat, Cold, or Care; and by all such Causes as hinder the Protrusion or Impulse of the Blood into the *glandulous* Part of the *Brain*, or its Passage through its Vessels, and the necessary Separation of *Spirits*, and the Derivation of them into the *Nerves*, being the Organs of Sensation, and the Muscles serving to *voluntary Motion*; and the *Reflux* of them towards the *Sensorium Commune* †.

Sleep is hindered by a continual Mixture of Water, or hot Liquors, with the Blood, or any sharp Thing that vellicates or twinges the *Nerves* of the *Brain*; also by violent *Passions* of the *Mind*, or the *Brain's* being disturbed by any internal or external Cause.

Therefore it appears from what has been said, that *Sleep* is such a State of the *Brain*, wherein the *Nerves* do not receive from it so large or so strong an Influx of *Spirits*, as is required for the Organs of *Sense* and *voluntary Motions* to perform their Actions with Ease and Quickness.

The

† *The Seat of Common Sense*, is in that Part of the *Brain*, in which the *Nerves*, from the Organs of all the Senses, are terminated, which is in the Beginning of the *Medulla Oblongata*, and not in the *Glandula Pinealis*, as *Des Cartes* and others would erroneously have it.

The most immediate Cause here- *The natural Cause of Sleep.*
of is perhaps the Defect of a subtile *Spirit*, which requires a long Time to prepare it, and being now spent and exhausted; so that the finest Vessels being emptied and flagg'd, for a Time fall together; or there is too great a Flux of thicker Blood impell'd to the *Cortex* of the *Brain*, so that the *medullary* Part is compress'd, and the Motion of the *Spirits* hindered; therefore the natural Cause of *Sleep* is every thing that may produce these two Particulars.

Therefore if we consider the Na- *The Effects of too much Watching.*
ture, Necessities, and Advantages of *Sleep*, already mentioned, we may easily perceive how too much *Watching* will deprive the Solids of that due Supply of *Spirits* so absolutely necessary to enable them to perform their several *Functions*; and that for want of a good Digestion *Perspiration* will be very much obstructed, which must render the Body dull and heavier; for, according to *Sanctorius*, "interrupted and unquiet *Sleep*" lessens the Quantity usually thrown off by "Perspiration about a third Part:"* And likewise, "whatsoever hinders Sleep, hinders" also the Perspiration of that digested Matter, "which ought to exhale;"§ because interrupted *Sleep* keeps the Fibres in that Degree of Tension, which is not suitable to forward the Juices to the Extremities, and let the Matter of *Perspiration* go off by the Pores of the Skin:

R 4

For

* Aph. 5. Sect. iv.

§ Aph. 8. Sect. iv.

For whatsoever hinders that easy *Relaxation* necessary for sound *Sleep*, must likewise hinder *Perspiration*; so that *full, heavy, and luxurious* late Suppers must hinder it; because such a Load in the Stomach will keep the Fibres upon the stretch, and consequently our *Sleep* will be uneasy and interrupted, until that be removed.

It is therefore very certain, that according as our alimentary Organs are easy, quiet, and not overladen with Food, our Sleep is sound, sweet, and refreshing; for if any Person not labouring under a Disease, is restless in his *Sleep*, it must arise from his Stomach's being overcharg'd with indigested Food, or *Crudities* not carry'd off by proper Exercise; or his *Intestines* are filled with Wind, *Choler*, or superfluous *Chyle*: and the restless Nights which are generally ascrib'd to *Vapours*, are entirely owing to the said Causes. Therefore all those that would preserve their Health, and lengthen out their Days, ought to avoid *large and late* Meat-Suppers; especially the *sedentary, studious, and such* as have little or no Labour or Exercise, should eat very light or no Supper; if any, it ought to consist of some vegetable Food; neither ought they to go soon to Bed after any Supper whatever. And such People in general should give Attention to this Aphorism of the *Schola Salernitana*,

Somnus

Somnus ut fit levis, fit tibi cœna brevis:

Viz.

That your Sleep may be sweet, let your Supper be light.

Immoderate *Watching* and want of *Sleep*, produces Diseases of the Head, corrupts the *Temperature* of the Brain, causes sometimes *Madness*, inflames the Humours, generates and excites a *saline Acrimony* in the Blood and Juices; hence arise *cutaneous Eruptions* of different sorts; likewise the want of moderate *Sleep* occasions bad Digestion, fills the Stomach with *Crudities*, and dissipates the *Spirits*, by which means a thorough Waste and Decay of both the Solids and Fluids succeed at last.

Sanctorius observes, that * “ They who
“ sleep well and do not dream, perspire
“ well; and on the contrary, they who
“ dream much perspire less.” Because dreaming is a State between sleeping and waking, wherein, altho’ the Mind does not exercise such a Power over the Body, as to direct its Motions in the same Degree as when awake, yet by its Attention to those confused *Ideas* which pass thro’ it, the Solids are kept in some Degree of Contraction, greater than is agreeable with sound Sleep; and therefore *Perspiration*, which depends upon a settled Relaxation, cannot be perform’d so well at such times, as when in quiet and profound Sleep,

* Aph. 27. Sect. IV.

Sleep, neither have they that Refreshment, Lightness and Agility, which spreads all over the Body, and principally the Brain, as those who sleep quietly without dreaming.

The Effects of too much Sleep. Long and superfluous *Sleep* is very pernicious to both the Mind and the Body; for it chills the Body, weakens the natural Heat, breeds *phlegmatic* Humours, and fills it with *Crudities*; whence arise much Sloth and Laziness, the Parent of many Diseases; it likewise fixes the Spirits, and renders them sluggish and stupid; it dulls the Understanding, hardens the Excrements, and makes the Body costive, which is frequently the Cause of various Distempers. In short, superfluous Sleep is neither good for the Body nor the Mind, nor for Business; for he who sleeps too much is but half a Man, Sleep rendering him in all Points like a dead Man, except his Digestion and the Pulsation of his Arteries; for he neither sees, hears, speaks, or understands, and is absolutely depriv'd of all Reason, which for the Time is a perfect Death. Besides, too much Sleep occasions in both sound and firm Bodies a Shortness of Breath, and is a constant Fore-runner and Disposition to an *Apoplexy*, *Lethargy*, *Palsy*, and *Numbness*, by hindering the seasonable Evacuations of the Excrements, causing them to remain too long in the Body.

Sanctorius is very clear on this Head, and says, * in one of his *Aphorisms*, “ By too
“ much

* Aph. 50. Sect. IV.

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“much Sleep both the inward and outward
“Parts grow cold, the Humours are obstru-
“cted and render'd unperspirable, and the
“whole Body heavier.” So that by the
very same means by which moderate Sleep
is serviceable and necessary, too much of it
proves injurious; because too much *Relaxa-
tion* overcharges the *Nerves* with too thick
and too great a Quantity of Juices, which
instead of rendering them fitter for Motion,
clogs them, and makes them less capable of
recovering their Springs afterward; so that
when once the Solids fail, the Fluids of
course slacken in their Motions, by which
means the natural Heat decays, and the
Flesh grows cold, and they themselves be-
come also more fizy or gluey; for which
Reason they suffer less to pass off thro' the
Pores by *insensible Perspiration*, or otherwise,
and consequently the Body is render'd heavier.

Sleep in the Day time, or after Dinner, is
not to be allow'd, unless a Person has ac-
custom'd himself to it, or has not rested
well the Night before, or if he perceives a
kind of *Lassitude* or Weariness in his Limbs;
in such Cases, I say, one may sleep an Hour,
or half an Hour after Dinner, and even it is
beneficial to those of weak Stomachs and
slow Digestion; for according to *Sanctorius* *,
“An Hour's Sleep at Noon after a Meal,
“sometimes occasions the Body insensibly to
“perspire a Pound, and sometimes half a
“Pound:

* Aph. 37. Sect. IV.

“ Pound : a Pound when any of the perspirable Matter of the former Day has been retain’d; when not, but half a Pound.”

This is recommended as a most excellent Remedy in weak People for imperfect Digestion, and there is a great deal of Reason why it should be of Service; because such an additional Help every Day, may compensate for the Deficiencies of the last Night’s *Perspiration*; but they must not be too free with this Practice, who are inclin’d to grow fat or *phlegmatick*. For according to the same Author *, “ Immoderate Sleep after Dinner injures all the Bowels, and obstructs Perspiration.”

So that altho’ a little Sleep at such Times, and in the Cases above-mention’d, upon a full Stomach may be of Service, by perspiring what did not sufficiently pass off the Night before; yet if it be continued too long, there will such a Quantity of indigested Matter follow, as will be too gross to pass, and consequently stop up the excretory Ducts of the Body, and thereby occasion very considerable Disorders.

The ordinary Time allow’d for Sleep is seven Hours; for that Time seems sufficient for perfecting Digestion, and recruiting the *Spirits*; but some require more Sleep, and some less: So *Children*, *antient People*, *Cholerick* and *dry Constitutions* require more, because it moistens and restores the *Spirits*; but
fat

* Aph. 66. Sect. IV.

fat and *phlegmatick* Constitutions of all People should sleep the least, for Reasons already given.

As nothing seems more directly pointed out to us by *Nature*, than the Day for Exercise and Labour, and the Night for Rest; so the fittest Time for Sleeping † is about four Hours after Supper, for then the Stomach is not loaded with Food, the first *Concoction* being then perfected, and by this Time the *Chyle* has got into the Blood; so that such a quiet and relaxed State as Sleep produces, is most necessary to both *Nutrition* and *Perspiration*: and the fittest Time for that Purpose is in the Night; because the Damps, Vapours, and Exhalations, which are rarefy'd by the Heat of the Sun in the Day-time, are now condensed, and fall down upon the Surface of the Earth again, which must obstruct the Pores of the Body, and consequently hinder *Perspiration*, if exposed to such *Damps* by Night-watchings, or unseasonable Sittings-up; and this is one of the principal Causes of various Diseases, both *acute* and *chronical*, which soon break and shatter the Constitution, shorten Life, and beget a decrepid Age; so that Watching by Night, and sleeping by Day, is of the most pernicious Consequence to Health and long Life, and plainly contrary to the Indications or Dictates of Nature, and the Constitutions of our Body.

Therefore

† This is conformable to *Aph.* 28. Sect. IV. of *Sanctorius*.

Therefore all those who value Health and long Life, ought carefully to avoid Night Damps and Dews, and unseasonable Watching or Sitting-up, but go to Bed by eight, nine, or ten, and rise betimes in the Morning, that is, by five or six; for according to the old *Proverb*, *Surgere diluculo saluberrimum est*; that is, *To rise betimes is most conducive to Health*.

The following Rules ought to be carefully observ'd in regard to the Position or Posture of our lying in Bed. In the first Place, we should never lie too close or too warm, which may obstruct the Fumes and Vapours necessary to be exhal'd from the Body; and we should always lie with our Heads a little raised, to prevent the Food from rising from the Bottom of the Stomach, to its upper Orifice.

Secondly, We should never sleep upon our Back; because thereby we prevent the usual Excrements of the *Brain*, which are discharg'd by the Nose and Mouth, from falling upon the Windpipe and Back-bone; but if we sleep upon our Back, we over-heat the *Reins*, by being pressed between the *Intestines* and the Bed, and thereby oftentimes produce *Stone* and *Gravel*, and send many Fumes and Vapours to the Head.

Thirdly, It is necessary to take our first Sleep upon our right Side, to prevent the *Liver's* pressing the *Stomach*, then replenish'd with the Food we took in at Supper, which must

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must happen if we lie on the left Side. Besides, by sleeping first on the right Side, what is concocted of the Food descends gradually and easily out of the lower Orifice of the Stomach into the *Intestines*, and then the *Liver* comes underneath it, and is instead of a *Chafing-Dish* to it, which promotes Digestion very much. After this, we should turn to the left, that thereby the Steams and Vapours retain'd on the right Side may exhale. And *lastly*, when we go to Rest, we ought not to stretch our Joints, but rather bend them a little; for as * *Galen* observes, *The Ease of the Muscles consists in a moderate Contraction.*



C H A P. X.

Of MOTION and REST.

BY *Motion*, I mean here *Exercise* and *Labour*, as Walking, Riding, Running, playing at Ball, &c. They encrease natural Heat, and consume the Crudities of the Body; for it is very certain, that all Sorts of *Aliment* tho' never so pure, have yet always something in them unlike our Nature, which can never be assimilated to either our Juices or Substance; so that some Excrement must
always

* *Galenus*, lib. 1. de motu Musculari.

always then remain in every Concoction, which being retained in the Body, may produce a Multitude of various Diseases: But the grossest Excrements are discharged by a sensible Evacuation, and the most subtile are insensibly dissipated and resolved by *Exercise* or *Labour*.

This made the divine *Hippocrates* very justly say, in his Book of Diet, that “ One
“ cannot preserve Health, except he joins
“ Exercise with his Diet; for the one repairs
“ what is lost, and the other dissipates what
“ is superfluous.” Hence moderate and regular *Exercise* prevents *Repletion*, which is often the Parent of many Diseases; by increasing the natural Heat, it keeps all the Canals of the Body open, and free from Obstructions; it renders the Body supple; prepares and disposes all the Superfluities for both *Secretion* and *Excretion*, as well in general as in particular; it likewise fortifies the Nerves, and strengthens all the Joints; which is confirm’d by the great *Hippocrates*, in his *Epidemics*, saying that, “ As Sleep is proper for
“ the Bowels, so is Exercise for strengthen-
“ ing the Joints.” *Celsus* also tells us, that
“ Idleness makes the Body dull and heavy,
“ but Labour strengthens and renders it firm
“ and active; Laziness makes us soon grow
“ old, but Exercise preserves Youth a long
“ Time †.”

To

† Lib. 1. Caput 1.

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To prove the Necessity of *Motion* or *Exercise*, for the Preservation of Health and long Life, it will be necessary to observe, that a human Body, as it comes under the Consideration of a *Physician*, is merely a *Machine*. Considering it therefore in this Manner, it is divided into Solids and Fluids; the Solids are *vascular*, and have continually propell'd thro' them some Liquor or other necessary for the Purposes and Support of the *Machine*: And these circulating Fluids are of different Kinds, arising from the different Agitations and Velocities impress'd upon them by the Vessels which circulate them.

But in this View they have a necessary Dependence upon each other; for as the *Distension* and Power of Restitution in the Vessels, is owing to their being duly moisten'd by some convenient Fluid, separated and dispensed to them from the Blood, which is the common *Promptuary* of all the animal Juices; so likewise that due Constitution of the Blood, which fits it for yielding some of its Parts for that Use, depends upon its certain Degrees of Fluidity, which are always as the *Contraction* of its circulating Vessels: But yet even in this the Solids have the principal Share; because, as that Power by which the Blood is preserv'd in a due *Crafsis* or Constitution is derived from itself, that is, of bestowing upon the Solids a Juice necessary for the Preservation of their Springs, yet that Constitution enabling it to afford such a Power, being pri-

S

marily

marily derived from the Actions of the Solids upon it, the chief Spring or Rise of *Motion* is in the Solids.

To know therefore the most ready Ways of altering the Constitution of the Fluids, is to find out the most convenient and effectual Means of influencing the *Contractions* of their Vessels; but this cannot be done, without knowing first upon what Texture and *Mechanism* of Parts their Powers of *Contraction* and Distension depend.

And in order to come to any Certainty of this Matter, we are to consider, that it is very well known, that any Membrane or Vessel may be separated or divided into very small *Fibres* and Threads, when just taken out of the Body, and that these Threads may be drawn out a considerable Length beyond what is natural to them without breaking, and that when such external Force which so distended them is removed, they will again, by their *Elasticity*, restore themselves to their former Dimensions. And it is farther likewise known, that these Properties of *Distension* and *Contraction* are preserved in them by a convenient Moisture; because, if one of these Threads be dried, it will immediately lose it, so that upon the Application of any Force to stretch it, it will break; as also its being soak'd too much in Liquor will render it flaccid; as likewise destroy its *Elasticity* or Power of Restitution when distended.

But

But what is exactly the constituent Texture, or what are perfectly the Shapes and Arrangement of those Parts which compose an animal *Fibre*, is scarce possible to be justly determined; because they are too fine to be perceived by the naked Eye, or even by the Help of the best *Microscopes*, when very minutely divided; which Division proceeds so far at last, that the component *Fibrillæ* become so incredibly small, as to exceed the Power of Imagination; but Reason convinces us that there must be an End.

However, as to the present Enquiry concerning the Effects of Motion or Exercise on the Solids and Fluids of a human Body, it will be sufficient, with what has been already said, that it is known to a Demonstration, that all the *Fibres* in a living Body are in a State of *Distension*; that is, they are drawn out into a greater Length than they would be in, if separated from any Part, and taken out of the Body; which is easily demonstrated, by cutting transverse, or dividing of a *Nerve* or *Artery*, which are intirely a Composition of the Threads we are now speaking of; for immediately we see the divided Parts run up and leave a great Distance between them, as in Wounds, and the Fluids contained in them upon such *Contraction*, to be so squeez'd out; and this also makes it appear, that their natural *Distension* is owing to some Fluid being propell'd into the Vessels which they compose, with a greater Force

than their Endeavours of *Restitution*, so far as to obtain a close Contact of all their *transverse Surfaces*, but yet lesser than that which is necessary to distend them, so far as to bring them to *Coincidence*, for in such a Case the Vessels would break.

In the next Place then, this State of *Distension* of the *Fibres* must necessarily leave some little *Vacuities* or *Interstices* between all their transverse Surfaces, which *Vacuities* will continue as long as the *longitudinal Surfaces* of their component Parts continue so close to one another, as to prevent the Entrance of any foreign Matter between, how subtile soever ; for the same Reason as when the *Embolus* of a *Syringe* is drawn, and the Pipe is stopp'd, there must needs be a continual *nisus restituendi*, or an Endeavour of *Contraction*. There is also a farther Necessity of being supported in such a State of *Distension* ; because, if they were closely in Contact with each other in all Parts, they could not be put into, and continue in those *undulatory* Motions, which they are always in, in a living Body, without being very much alter'd both in their Figures and Contextures.

But it being manifest that all the *animal Fibres* are continued by the perpetual successive Impulse of the Fluids, in such *undulatory* Motions ; besides this Necessity of their being distended, they also must be continually moisten'd with some convenient Fluid, otherwise their continual Attritions against one another would

would soon wear out, and render it difficult to move them.

The Fluid likewise suited for this Purpose must be very fine and subtile, because otherwise it cannot be insinuated into all the Interstices of the *Fibres*, without separating their Parts so far as is inconsistent with the Contexture and *Mechanism* of a *Fibre*, already described; and the Parts also of this Fluid must not only be very subtile, but likewise soft and yielding, whereby the Motions of the Particles against one another may be maintained the better; and also as by a *Cement*, that they may be prevented in their receding from each other in their *longitudinal Surfaces*, so far as to admit of no foreign Matter to insinuate itself between their *transverse Surfaces*, in such Quantities as to hinder their Re-union when Occasion may require it.

From what has been said it will appear, that the most natural Consequence of Motion, will be the breaking still smaller and smaller the component Particles of that Fluid, which is dispensed to the *Fibres* to lubricate and facilitate their Motions; which Commi-nution will be continued till it is rendered so fine, as to fly off at last at the Surface of the Body, being of no farther Use to Nature, whenever it happens to get there, and by that Means must be there continually made a Waste of, and that merely by such an Attrition of the Parts, as necessarily arises from their due

Discharge of the *vital Functions*; and that Matter, which thus insensibly flies off, is the true Matter of *insensible Perspiration*, the Exhalation of which is absolutely necessary for the Preservation of Health and long Life.

But this Waste makes it necessary that there be a continual Supply of what is lost; and this is made from what is taken in by the Stomach, which, after divers Digestions and Alterations, at last is mixed with the Blood, and there fitted for some of the finest Parts to pass through the Glands constituted for that Purpose in the Brain, which from thence are dispens'd through the whole *nervous System*, in such a Manner, as constantly to keep up a due Supply of this *animal Fluid*.

Yet there is another Way by which the *Fibres* receive fresh Supplies, and that a much nearer; for, according to their natural Structures, it is very likely that even in the Stomach, and throughout the whole Passage of the Food into the Blood, the most subtile Parts of what is taken in, which are soon separated from the rest, and ready fitted for this Use, may, when they chance to strike against any of the Interstices of a *Fibre*, be laid hold on, and by Degrees convey'd into the Substance of the Thread; for it is certain the most subtile Part of the *Chyle* passes immediately into the Blood by the absorbent Vessels

sels * of the *Intestines*, as I have observed in another Place, which discharge themselves into the *Mesaraick Veins* †, and from thence are convey'd directly into the Liver and Spleen.

Besides, this is farther supported by common Experience, by which it is evident, that the Solids are invigorated with fresh Recruits of Spirits, immediately upon taking into the Stomach such Meats and Drinks as are spirituous, and contain in their Composition plenty of Particles very fine and active, and easily to be divided from the rest: And thus every one, upon eating a good Meal, or upon drinking of any spirituous Liquor, especially if it be after long fasting, or a large Expence by hard Labour or Exercise, finds himself immediately, as soon as it is in his Stomach, raised with new Spirit and Vigour; which could by no Means happen, were the Solids to obtain these Recruits altogether from the *Chyle's* passing through the *Lacteals* to the *Thoracick Duct*,

S 4

and

* Are Vessels which suck in.

† They are Branches of the *Vena Portæ*, interspersed in great Numbers in and upon the *Laminae* of the *Mesentery*, which is a membranous Part in the lower Belly, to which the Guts are connected, and they carry the Blood back to the Liver: Their Largeness and Number demonstrate what is said above; for they are numerous and vastly larger than their correspondent Arteries; besides, wherever there are Emissaries, which are little Vessels which throw out a Liquid, there are likewise absorbent Vessels; for Example, in the Skin, by the absorbent Vessels of which Mercury will pass into the Blood. Moreover Birds, which have strong and large Breasts, small Bellies, and their Ribs upon their Backs, have no *Lacteals* nor *Thoracick Duct*, and their Aliment passes immediately into the *Mesaraick Veins*, by which Means they receive their Nourishment intirely.

and thence into the Blood ; because it is impossible that what a Person finds himself so soon recruited by, should in so short a Time have gone through the usual Digestions and Circulations, which require some Hours for that Purpose, according to *Sanctorius*, and a great many Authors of undoubted Authority.

Upon a View of what has been said, with what ease may be explained, how the Body, by moderate Exercise, is rendered lighter upon a twofold Account ! Because, in the first Place, there is occasion'd by it a Substraction of its absolute Weight, as it assists Digestion, and by breaking the Matter to be perspired finer ; secondly, it promotes the Discharge of that Matter through the Pores ; and because by the *Vibration* of the Solids, at the same Time, there is a larger Quantity of fresh Spirits taken up by them from the circulating Blood, both by the *Secretion* made of them in the Brain, and in the Manner they are convey'd by the *absorbent Vessels* just now explained, whereby the *Fibres* become more invigorated, and so much the more able to carry on a due Discharge of all the *vital Functions*, inso-much that the Body will not have the Sense or Perception of so much absolute Weight as before.

Moreover, the *Muscles* and *Ligaments* are cleared of their Excrements by Exercise ; that is, whatever superfluous Particles of the digested *perspirable Matter* may adhere to them, is by Motion dislodg'd and shook off :
And

And the Spirits are rendered finer; that is, such Parts of the *nervous Fluid* as are just received by the *Fibres*, are by the Actions of their component Threads broke smaller, and rendered fitter for the Purposes of the whole Body.

Upon this View likewise it will be easy to account for some Disorders this Fluid is likely to fall into, or how it is most liable to be distemper'd; which is very plain, that it must be either by becoming too *gross* and *sizy*, or too fine or exhalable.

The first may be occasioned by a want of sufficient Agitation or Motion in the Solids, whereby its Parts attract each other, and form viscid *Cohesions*, in the same Manner as it happens in the Blood in the same Case, which renders the Motions of the constituent Threads of the *Fibres* very difficult and troublesome, and sometimes so obstructs or blocks up those little Vacuities or Interstices between their *transverse Surfaces*, which are necessary for the Support of their *Elasticity*, as to prevent, in a great Measure at least, their Power of *Restitution* when they are distended; as happens in a *Leucophlegmatia*, *Anasarca*, and such like Disorders, where the Springs of the *Fibres* are so much destroy'd, that by any small Pressure upon a Muscle, the Impression will sometimes remain a long Time before their constituent Threads can recover their natural Dimensions; or, as it is commonly express'd, the Part will pit.

The

The other Disorder of this Fluid, opposite to the former, is, its being broke too fine; which will render it so exhalable as to fly off in greater Quantities than the *concoctive Power* in the Stomach is able to recruit or supply; and this is often brought about by too violent Exercise, too large Evacuations, or drinking too great Plenty of spirituous and hot Liquors, whereby the Constitution of the Blood is so far weaken'd, as not to give due Resistance to the *Contractions* of the Vessels which circulate the Juices, whereupon they *vibrate* quicker, and break the *nervous Juice* too fine; which brings on a *Hectick*, and Death, if not timely remedied.

As to the first of these Disorders, it is evident that it is to be remedied by giving brisker Motions to the Solids, and encreasing the *Vibrations* of the *contractile* Vessels, in which how far Exercise may be useful, is evident from what has been said already; for every Thing which acts as a *Stimulus* comes under this Head; and their Efficacy is chiefly to be determined by their greater or lesser Power of *stimulating*, shaking, and contracting the *Fibres*, which Exercise rightly pursued produces more efficaciously, and with less Danger, than any other Method whatsoever.

For by such Means the component Threads of the *Fibres* are so put in Motion, as to loosen such Parts of the *animal Oil*, as are obstructed in their Interstices, and by Degrees break them small enough for Expulsion; and
a fresh

a fresh Stock of such Spirits will be supply'd, as will restore them to their natural Springs.

As to the latter Disorder, it is to be removed by a Diet that *agglutinates*, and gives a greater or stronger Consistence to all the Fluids, and by all such Means as check the inordinate Motions of the Solids. So that upon the Whole it is evident, that to keep from either of these Extremes, Care is to be taken to maintain a just Ballance between the *elastick* Force of the Solids and the Resistances of the circulating Fluids, in which true Health consists; because, if the *Equilibrium* is lost on either Side, the Body cannot but fall into some Distemper; and in this consists the whole Art and Business of a rational Practice, to know when to add to, or subtract from, the Resistances of the Fluids, and when to check or spur the Motions of the Solids; as also to be well acquainted with the various Methods by which all these Intentions may be brought about.

And here I cannot omit just taking Notice, how wonderfully the Effects of *Musick* in some extraordinary Cases are hereby accounted for; and tho' *Musick*, strictly speaking, may not be deem'd Exercise, unless it be so to those who exercise it themselves; yet it will manifestly appear otherwise, if we consider, that according to the Nature and Contexture of an *animal Fibre* or Thread, it is very plain that the least Stroke imaginable upon it, must move its component *Fibrillæ* in all their

their Parts; therefore every Wave or *Undulation* of the Air, which is made by a musical Instrument, gives the *Fibres* of the whole Body more or less correspondent Concussions, according to their Degrees of *Tension*, whereby all the component *Fibrillæ* are successively moved from one to another throughout the whole Thread; and consequently the Spirits are not only raised and made finer, but likewise the other *animal Fluids* are also more briskly agitated, and their preternatural *Cohesions* and Viscidities destroyed: All which plainly prove, that *Musick* is not only good Exercise for the *Mind*, but likewise very useful for the *Body*, by the agreeable Concussions and Thrillings we sensibly perceive from it in all the fleshy *Fibres* of the Body.

Hence *Musick* has this Advantage above any other Exercise, that those Concussions made upon the *Fibres* thereby are short, quick, and easy, whereupon the nervous Fluid is not only more briskly agitated, but also the natural Contexture of all the animal Threads are better preserved, being never overstrained hereby, as they frequently are with other Exercises: Therefore upon this View the extraordinary Effects of *Musick* in several Diseases, as that of the Bite of a *Tarantula* *, &c. ceases to be a Wonder, and it

* Among all the wonderful Effects ascrib'd to the Power of Musick, none is more surprising and important than that of curing the venomous Bite of the *Italian Spider*, called the *Tarantula*. The Part bitten is soon affected with a very acute Pain,

it rather comes to be admired that it is not much more brought into Use here for the Benefit of *valetudinary* and weakly Constitutions, as it is in *Italy* and other Countries, and that even by the Direction of their Physicians.

What has been said farther explains that common Effect of Exercise, in its giving always, conformable to *Hippocrates's* Opinion, a greater Firmness and Strength to the Solids; for the more a *Fibre* is kept in Action, the clearer it will keep its component Parts from the Lodgement and Adhesion of any foreign and superfluous Matter upon them, by which Means whenever it is distended or stretch'd, there will be the more Room for each Particle to draw up again, and consequently its Return will be with greater Force; but the Exercise which produces this Effect, is such only as does not exceed the Powers of the
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Pain, and a few Hours after with *Numbness*; upon which ensues a profound *Sadness*, and a Difficulty of *Respiration*; the Pulse grows weak, the Sight is disturbed, and the Person loses Knowledge, Sense, and Motion. The Doctor is in vain consulted; the Musician here alone performs the Cure; he tries a Variety of *Airs*, and when he happens to hit on that Harmony that accords with the Patient, he begins to move by Degrees, and keeps Time with his Fingers, Arms, Legs, and Body; then he raises himself up and dances, increasing in Strength and Activity. This dancing Fit continues six Hours, or a Day, or sometimes two Days. When the Musick ceases, the Person gives over dancing, and is put to Bed. And this Process is repeated till the Patient is recovered, which is by little and little; and every sick Person has a particular Tune or Air, and always a very brisk or sprightly one. See *Derham's Physico-Theology*, Book IV. Chap. iii. and *Malcolm's Musick*, Chap. xiv. Sect. 3. &c.

Constitution; for too much Exercise destroys the Solids, by consuming the Fluids too much.

But on the contrary, by too much Rest and Inactivity every Part will lose its Strength, and the less it is mov'd, be still render'd less able for Motion. And upon this Account it is that we see daily such a very great Difference between active and stirring Persons, and such whose Circumstances of Life inures them to Labour and Exercise, and those whose Inclinations and Condition indulge them in Ease and Inactivity; for the former are strong, hardy, and healthful, but the latter tender, weakly, and diseas'd.

From the Doctrine of this Chapter, it is manifest to a Demonstration, that there is an absolute Necessity for Labour and Exercise, to preserve the Body any time in a due State to maintain Health, and prolong Life: For let whatever Diet be pursued, though never so well adjusted both in Quantity and Quality, and let whatever Evacuations be used to lessen the Disorder, or any *Succedaneum* or Equivalent be proposed to prevent the ill Effects; yet our Bodies are so made, and the *animal Oeconomy* so contriv'd, that without due Labour or Exercise the Juices will thicken, the Joints will stiffen, the *Nerves* will relax, and on these Disorders, *chronical Distempers* and a shatter'd old Age must soon ensue.

And

And tho' light Food may in a great measure prevent the thickening of the Fluids, yet it cannot do it sufficiently without Exercise; nor can it at all keep the *Fibres* in due Tension, for to that Purpose Exercise is absolutely necessary: Even the joint Power of warm Air and light Food, cannot supply the Place of Exercise in keeping them pliant and moveable, and preserving them from growing hard and stiff. But we should always avoid too much Labour or Exercise, as I have just now observ'd; for *Sanctorius* tells us, “ That by too much Exercise the *Fibres* “ become hard, whence old Age proceeds, “ which is an universal Hardness and Stiff- “ ness of the *Fibres* *.”

There are general and particular Exercises; the former, which move and stir the whole Body, are *Walking, Dancing, Fencing, Running, Leaping, Bowling, Tennis, Pumping, Riding* a Horseback, or in a Coach, &c. of all which *Walking* is the most natural, and would be also the most useful, if it did not exhaust the Spirits of weakly Constitutions too much; but *Riding* is certainly the most manly, the most healthy, and the least laborious and expensive of the Spirits of any, shaking the whole Body, and thereby promoting an universal *Perspiration* and *Secretion* of all the Fluids; to which may be added the various Changes of the Air thro' which they so quickly pass, the Alterations
of

* Aph. 35. Sect. V.

of which become as it were a new Bath, and by that means variously stimulating the *Fibres* to brace and contract them; besides the different Objects or new Scenes, which at the same Time amuse the Mind.

The immortal *Sydenham* laid so great a Stress on Riding, that he thought he could not only cure slight *Consumptions*, but an almost desperate *Tabes*, attended with *nocturnal Sweats*, and a violent *Diarrhœa*, by Riding alone; nor did he believe *Mercury* more effectual in the Cure of the *Venereal Disease*, or the *Bark* in intermittent Fevers, than Riding was in a *Consumption*.

Those who cannot ride may use a *Coach*, *Chaise*, or *Chair*, which is the only proper Method for *lame*, *old*, and *decrepid* Persons, as well as for those who are so young, that they are not able to manage their own Exercise.

There are also particular Exercises appropriated to certain Parts of the Body; as *Shooting*, for the *Breast*; *Talking*, *Singing*, *Hollowing*, *Blowing the Horn*, or *Wind-Instruments*, for strengthening, opening, and clearing the *Lungs*; *Tennis* or *Foot-ball*, for those who have weak *Arms* or *Hams*; *Bowling* or *Skettles*, for the *Reins* and *Loins*; *Riding*, for weak *Nerves* and *Digestion*, and those troubled with *Head-aches*.

In short, there is no one particular Part of the Body, but might be strengthen'd and kept in due Plight by Labour or Exercise
rightly

rightly appropriated to the particular Organ; for it is very remarkable, how the several different Limbs of labouring Men are strengthen'd, and render'd fleshy and nervous, as they happen to be most employ'd in their different Occupations: so the *Thighs, Legs, and Feet of Chairmen*; the *Arms and Hands of Watermen*; the *Backs and Shoulders of Porters*, grow thereby thick, strong, and hard in time; for it is very certain, that using any Organ or Member frequently and forcibly, brings Blood and Spirits into it, and by that means is render'd plump and strong.

The following Conditions ought to be observ'd with Regard to *Exercise*, in order to render it the most beneficial that may be. The *first*, that it be upon an empty *Stomach*, for then all the Matter which is digested enough for *Perspiration*, will thereby be easily discharg'd; but *Exercise* on a full Meal is very pernicious, for it subverts the *Stomach*, and forces the Aliment from thence crude and indigested, and so hurries it into the Veins and Habit of the Body, whereby the *Secretions* are precipitated, and the sound Juices are carried off with the corrupted Humours; hence arise frequently *putrid Fevers, Pleurifies, Head-achs, weak Eyes*, and a general *Cacochymy*, or a vitiated *Constitution*.

Secondly, the Morning *Exercise* is always the best, for then the two Concoctions are finish'd; and *Hippocrates* is very clear upon this Head,

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in one of his *Aphorisms*, wherein he says, *Let us exercise before eating*. But it should be moderate and equal; I call that *Exercise* moderate which is not tiresome, and equal when all the Parts of the Body are equally mov'd.

Thirdly, They that are lean should exercise only *ad Ruborem*, that is, till the Body and Spirits are gently heated, for that will help to fatten them; but they who are fat may exercise *ad Sudorem*, that is, till they sweat, for that will help to melt down Part of their Fat, and consequently *extenuate* the Body.

Fourthly, We must carefully avoid drinking any cold Liquors after violent or great *Exercise*, or when we are hot and sweating, which *Heat* and *Thirst* intice us to do; the dangerous Effects of which, are chilling and almost extinguishing the remainder of the *Heat* which is left in the inward Parts, and surfeiting the Blood and Juices, by mixing cold Drink with the *Fat*, which is at that Time partly melted and floating in the Body.

Fifthly, Another great Error to be avoided is, drinking of strong and spirituous Liquors after hard Labour or Exercise, in order to avoid the former Inconveniencies, not considering that we thereby incur another, which is over-heating and drying our Bodies, too much heated and dry'd before; but to avoid both, and to refresh the Body at the same time, the best Way is, first to rest a while warm,

warm, if we can conveniently, and then to drink a Draught of warm *Ale* or *Beer*, with a little *Mace* and *Sugar* in it, or some other innocent Supping, *analogous* in Heat or Warmth to that of our Bodies, by which means the Blood and Spirits will soon settle, and be refresh'd, and so the *Limbs* after Rest will be enabled with Ease to undergo new Labour.

Sixthly, We should carefully avoid catching of Cold after *Exercise*, by retiring into a warm Room, or some convenient Shelter from the Injuries of the Weather.



C H A P. XI.

Of RETENTION and EXCRETION.

TH E Things to be *excreted* or evacuated, and retained, are the *Excrements* of the *Belly*, *Urine*, *insensible Perspiration*, the *Semen*, and the *Menses*; for these must be regulated, and evacuated in due Time, and in due Quantity, all which conduce very much to the Preservation of Health and long Life, otherwise they will injure it, and bring on a Multitude of various Diseases. Therefore in a natural and healthy State, we should go to Stool once in 24 Hours, and the *Fæces* should be of a due Consistence, that is, some-

what soft, and stick together, according to the old Saying, *Oportet sanorum sedes esse configuratas*; that is, *The gross Excrements in healthy Persons ought to be of such a Consistence, as to take the Impression of the Guts.*

They who are costive, and otherwise not well, have either over-heated their Bodies with spirituous Liquors, or have fasted too long, or eaten too sparingly, or they have too slow a Digestion, or too great Weakness of the *Intestines*; and by that means the Food is retain'd too long before the Mouths of the *Lacteals*, and is thereby over-drain'd of its Moisture, and harden'd.

The best Proportion of the *gross Evacuation* to the Quantity of the Food we take in, is about the third Part; for they who much exceed that, have the *Mesaraick Veins* stop't or obstructed, and so cannot be nourish'd; and if it exceeds it, 'tis certain that the Body wastes, unless the Matter of some Disease be thereby evacuated; or else, if they have purging Stools, they have eaten too much of Things too strong for their Powers of Digestion; for it is very certain, that superfluous Nourishment leaves too much *Chyle* in the gross *Excrements*, which fermenting in the Guts, stimulates them so as to become *purgative*.

But if the Looseness be not violent, and the Appetite remains good, it is not to be suddenly and rashly stopp'd; for Nature thereby frequently prevents, and often times
rids

rids herself of many a Disease, which upon an unadvised *Astriction* would be riveted in the Body; and therefore the Rule is, first *cleanse* and then *close*. But if it be too violent and frequent, and the *Stomach* thereby decay'd, it must be carefully and speedily remedied; and in this Case Advice is very necessary, for it is easy to commit an Error, but the Consequence is dangerous.

Here I cannot omit inserting an Abstract of some few Passages out of *Cheyne's* Essay of Health and Long Life, which are admirable upon this Subject, and very worthy of every Body's Perusal. 'I have often observed, *says he*, that a full Meal of strong Meat, as *Fish, Beef, Pork, baked Meat, or made* Dishes, in tender Persons goes off with the *Hurry and Irritation* of a *Purge*, leaving the Bowels *inflated, colick'd, grip'd*, and the Spirits sunk to the last Degree. The Food by its various Mixture, Weight, and Fermentation, stimulating all along from the *Stomach* to the *Rectum* *, and being scarce ever drain'd of its *Chyle*, without affording any Nourishment to the Body, runs off thus crudely, and becomes equal to a total Abstinence from Food for a long Time. And hence we have a most infallible Rule, † a *Posteriori*, to judge if we govern'd ourselves in our Diet in

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* The straight or last Gut.

† A *Posteriori*, i. e. after the Trial has been made.

‘ Proportion to the Necessities of *Nature*,
 ‘ and the Forces of our *concoctive Powers*.

‘ This is the very Reason why the *Bark*
 ‘ over dosed, and given to Persons of weak
 ‘ Digestion, so constantly purges them, and
 ‘ why *Mercury* given either inwardly, or
 ‘ by *Frictions*, runs off in violent Purging,
 ‘ and cannot be raised into a *Salivation*; to
 ‘ wit, the not adjusting the Doses to the
 ‘ Strength of the *Stomach* and nervous *Fi-*
 ‘ *bres*; for the *Bark* naturally binds, and
 ‘ *Mercury* naturally rises to the most § per-
 ‘ vious *Glands*.

‘ And in this Sense I myself have frequent-
 ‘ ly observ’d in weak and *scrophulous* Bowels,
 ‘ even *Diascordium* and *Venice Treacle* to
 ‘ purge: whereas, had the Doses been duly
 ‘ proportion’d, or had they begun by un-
 ‘ der-dosing, and taken a little longer time,
 ‘ they might have been effectually answer’d,
 ‘ as I have often experienc’d without ever
 ‘ failing.

‘ 2. There is a very great Error commit-
 ‘ ted in *Nurses* and *Parents* in rearing up
 ‘ young Children; the perpetual *Gripes*,
 ‘ *Colicks*, *Loosenesses*, *hard Bellies*, *Choak-*
 ‘ *ings*, *Wind* and *Convulsive Fits*, which tor-
 ‘ ment half the Children in *England*, are en-
 ‘ tirely owing to the too great Quantities of
 ‘ too strong Food, and too rank Milk, thrust
 ‘ down their Throats by their over-laying
 ‘ *Mothers*

§ *Pervious*, i. e. the easiest or readiest Way to be passed through.

‘ *Mothers* and *Nurses* ; for what else do their
 ‘ *slimy*, their *gray* or *chylous*, their *blackish*,
 ‘ and *choleric* Discharges, the *Noise* and *Mo-*
 ‘ *tion* in their *Bowels*, their *Wind* and *Choak-*
 ‘ *ings* imply, but *Crudities* from superfluous
 ‘ *Nourishment*? This is so certain, that they
 ‘ are universally and infallibly cur’d by *testa-*
 ‘ *ceous* Powders, which only absorb sharp *Cru-*
 ‘ *dities*; by *Rhubarb* Purges, which at once
 ‘ evacuate and strengthen the *Bowels*; and by
 ‘ *Milk Clysters*, *Issues*, and *Blisters*; and by
 ‘ obstinately persisting in these and the like,
 ‘ (intended to evacuate and strengthen the
 ‘ *alimentary Passages*) and a thin, spare and
 ‘ nutritive Diet; for nothing nourishes but
 ‘ Food duly concocted.

‘ 3. I have often heard *valetudinary* and
 ‘ *tender* Persons, and those of *sedentary* Lives,
 ‘ and *learned* Professions, complain of *Head-*
 ‘ *achs*, *Sicknesses* at the *Stomach*, *Colicks* and
 ‘ *Gripes*, *Lowness* of *Spirits*, *Wind* and *Va-*
 ‘ *pours*; and yet pretended they were very
 ‘ moderate and *abstemious* in their *Eating*
 ‘ and *Drinking*; but upon Enquiry, I con-
 ‘ stantly found these very Persons pursued
 ‘ with purging Stools, which was an evident
 ‘ Proof to me, that they had taken down
 ‘ more than they wanted, or could digest:
 ‘ for ’tis universally certain, that those that
 ‘ do not exceed, must have either *Costive*,
 ‘ or at least Stools of a middle Consistence.

‘ There is nothing more ridiculous, than
 ‘ to see tender, *hysterical* and *vapourish* Peo-

ple, perpetually complaining, and yet per-
 petually *cramming*, crying out, they are
 ready to sink into the Ground and faint
 away, and yet *gobbling* the richest and
 strongest Food, and highest Cordials, to
 oppress and overlay them quite. The pro-
 per Remedy in this Case, is first, to cleanse
 the *fætid Abyss*, and then to preserve it
 clean, by cutting off all the Inlets of *Pu-
 trefaction*. This will require a little *Cou-
 rage, Labour* and *Pain*; but the future
Ease and *Sweetness* will more than abun-
 dantly recompence them; for there is no-
 thing more certain, than that the *Head-achs*,
Colicks, and *nervous* Pains and Disorders, of
 those born sound here in *England*, univer-
 sally proceed from *Idleness* and *Fulness of
 Bread*.

4. Those who pretend to cure themselves
 of *nervous* Disorders, or any other *chroni-
 cal* Diseases, or preserve themselves from
 them, or lengthen out their Days, must
 under-dose themselves, even tho' they
 should undergo the Pain of *Costiveness*;
 for it is impossible the *Nerves* of those who
 have slippery Bowels, should ever be *braced
 or wound up*; for there the Cure must be-
 gin where the Evil began, and must be
 communicated thence to the rest of the
System; as a *Rope-maker* begins the *Twist* at
 one End of the Rope, and communicates
 it to all the other Parts.

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‘ Our Access to the Nerves of the Sto-
‘ mach and Bowels, is obvious and open ; to
‘ the rest the Way is difficult, and far about.
‘ And since a Relaxation, Weakness, and
‘ want of Spring in the Fibres, is the Origin
‘ of all nervous Distempers, no Medicines
‘ but such as contract, stiffen, wind up, and
‘ shorten them, can remedy this Evil ; and
‘ they must necessarily contract and bind up
‘ the Fibres of the Stomach and Guts, as the
‘ Parts they first approach and exert their
‘ Virtue upon. And he who without firm
‘ Bowels, thinks to cure a nervous Distemper,
‘ labours as much in vain, as he who would
‘ keep a Fiddle-string soaking in Oil and
‘ Water, to make it vibrate or play off a fine
‘ Composition of Musick.

5. ‘ There happens also an Evacuation
‘ both by Stool and Urine, to some weak
‘ Persons of relax'd Nerves, that extremely
‘ alarms them, and is not so readily account-
‘ ed for in that Part of Physick, which teaches
‘ the Causes of Diseases. It is when either
‘ a white transparent, viscid Substance like
‘ Gelly, is constantly voided by the Bowels,
‘ more or less ; or when a white, milky, gluey
‘ Substance like Cream or laudable Matter,
‘ settles in the Urine. Both these Appearances
‘ are commonly ascrib'd to an Ulcer in the
‘ Guts, or in the Kidneys ; and yet I am
‘ very certain, there is neither Ulcer or true
‘ Matter in either Case, as I propose them.
‘ For where there is violent and acute Pain,
‘ or

‘ Matter of different Colours or Mixtures,
 ‘ there very possibly may be, nay certainly
 ‘ there is an *Ulcer*. But in the Case I here
 ‘ intend, there is very little or no Pain, no
 ‘ *hectical Paroxysms*, which always attend an
 ‘ inward *Ulcer*; no bloody or sanious Mix-
 ‘ tures, which always betray the inward Sore;
 ‘ no foetid Smell to imply Corruption.

‘ The first Case I take to be either an
 ‘ Obstruction of some of the *Lacteals*, where-
 ‘ by the *Chyle* cannot be carried off in any
 ‘ sufficient Quantity, but passing thro’ the
 ‘ Guts, and its more watery Part being eva-
 ‘ porated, it becomes thick and gelatinous,
 ‘ and is thrown off at last with the Remains
 ‘ of the Food; else it must be an Obstru-
 ‘ ction of those Glands of the Guts, by
 ‘ which a *viscid Matter* for lubricating of
 ‘ them is commonly secreted, by the Im-
 ‘ prisonment and Evaporation of which Mat-
 ‘ ter it thickens and turns like a Gelly (as it
 ‘ does by Cold or Over-feeding, in the *Glands*
 ‘ of the Mouth, Throat, and Windpipe) and
 ‘ at last, by squeezing of the Guts is thrown
 ‘ off. And in the same manner, I take that
 ‘ milky Substance subsiding in the *Water*, in
 ‘ such a Case as I have mention’d, to arise
 ‘ from a *Relaxation* of the *Glands* of the
 ‘ Kidneys and Bladder, and other urinary
 ‘ Passages; and that both are to be cur’d the
 ‘ same Way as other *nervous* Distempers are
 ‘ cur’d; *viz.* by a proper *Regimen* of *Diet*,
 and

‘ and a Course of contracting, strengthening,
‘ and volatile Medicines.”

The second Evacuation is by *Urine*, being a serous Humour strain'd in the Kidneys, which comes with the Blood (which it diluted) to the Reins by the Arteries of the Kidneys, but is separated from it as excrementitious, and that continually, as Part of the Blood is constantly driven to the Kidneys to nourish them.

The *Urine* contains not only the watery Part of the Blood, but the sharpest Salt, which is most subtile and volatile, and nearly of an *alkaline* Nature, render'd exceeding volatile. In the watery Part there is also a *fætid* Substance contain'd, and a *viscid Oil* so attenuated, that it readily mixes with Water, and is scarce separable from it; which may therefore in some Measure be called a Spirit.

The natural Salt of *Urine* is of a lixivate, soapy Disposition, and much like *Sal-ammoniac*, yet in some Respects different from it: It also contains a fix'd Salt, of the Nature of Sea-salt, being compos'd of a lixivate one, and a nitrous; of which Nature is that which swims in the Blood, the nitrous Parts being imbibed into it thro' the *Lungs* in *Inspiration*; so that the Salt in *Urine* in a sound State, is neither *acid*, *alkali*, *ammonical*, nor *briny*, but of a peculiar Disposition.

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But as *Urine* is a * *Lixivium* of the Salts contained in a human Body, and the proper Mark of the State and Quantity of such Salts; therefore very certain Indications may be taken from the Condition of *Urine*, to discover both the State of our Constitution, and the Regulation of our Diet; and tho' the Salts of human *Urine* be neither *acid* nor *alkaline*, as I have just now observ'd, yet by the violent Motion of the Blood, as in burning and putrid Fevers, &c. they may be turn'd *alkaline*, and even corrosive; and when they begin to turn so, they affect the small and tender *Fibres* of the *Brain* more sensibly than any other Part of the Body.

When the *Urine* is of a bright *Amber* Colour, and of a moderate Thickness, with a light Cloud hanging in it, and in Quantity of about three Quarters of the Liquor taken in, it is best, and a certain Sign of a due Concoction, a just Proportion of Food, and a total Riddance of *Repletion* and *Crudities*; for they who live moderately, use due Exercise, and enjoy a perfect State of Health, always evacuate such *Urine*.

But when it is retain'd too long, either by the Fault of the Kidneys or Bladder, or because the Matter of it is not sufficiently separated from the Blood, or that it is kept too long in the Bladder thro' Laziness or Bashfulness, (as is often the Case) it occasions *Stone* and *Gravel*, and sometimes *Blotches* and *Eruptions*

* *Lixivium*, i. e. Lye, such as that of Soap.

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tions upon the Skin, *Dropsy*, *fainting*, and *sleepy*
Diseases, with a great many other Disorders,
too tedious to enumerate in this Place.

If there be too great an Evacuation of
Urine from any Cause whatsoever, by taking
away the *Serum*, or watry Parts of the Blood,
it will occasion a Stagnation of the *Humours*,
encrease *Heat*, an unextinguishable *Thirst*,
Crudities, and many Evils of the like Na-
ture ; and by depriving the Blood, and carry-
ing out of the Body the most nutritive Parts,
produce an *Atrophy*, or a total Decay, as in
a *Diabetes*, and Death at last.

The *Urine* differs both in *Taste*, *Smell*,
Colour and *Quantity*, according to the Diffe-
rence of Ages, Constitutions, Sexes, Seasons
of the Year, and Alterations of their Way
of living, and Diversity of Medicines ; so
that they who live *freely*, and make Quan-
tities of *pale*, or *limpid* and *sweet Urine*, it is
a manifest Sign that their *Perspiration* is ob-
structed ; that neither the *first* nor the *two*
last Concoctions * have been rightly perform'd ;
and that the *Chyle* has not been sufficiently
attenuated, nor the minutest *Secretions* duly
made by the lesser *Drains* of the Body, and
that the *urinous Salts* are still retain'd in the
Habit.

The

* *Concoction* in an animal Body is three-fold ; the first is
confin'd to what Alterations are made of the Food in the
Stomach and *Intestines* ; the second is applied to the Alterati-
ons made of it in the Blood-Vessels ; and that made in the
Nerves, *Fibres*, and minutest Vessels, is not improperly called
the third and last *Concoction*.

The Cure, as to Diet, consists in living regular, that is, in eating and drinking less, and using more *Air* and *Exercise*, drinking freely of small warm *White-Wine Whey*; likewise a little *Gascoign's Powder*, or Sir *Walter Raleigh's Confection* will be proper at the same time, in order to set *Perspiration* to rights again.

High-colour'd, foul, and very turbid Urine in small Quantities, proceeds from either an immoderate Use of strong or spirituous Liquors, or from too great abundance of Salts retain'd in the Body; which must be remedied by diminishing the Quantity of their *Flesh Meats*, and drinking small Liquors, or Water with their Wine, otherwise they will hurry themselves into some *acute Inflammatory*, or dangerous *Chronical Disease*.

Dark Brown, or dirty Red-colour'd Urine, without any Sediment, and in small Quantity, in *acute Distempers* is always a sure Indication of insurmountable *Crudity*, high *Inflammation* tending to a Mortification, and a dying Weakness in Nature: But in those who labour not under any visible Disease at the Time, it is a certain Sign of almost a total Weakness of the *digestive Powers*, an inseparable *Cohesion* of the component Parts of the Blood, and a *Deadness* in all the animal Functions; in which Case, a Physician's Advice is highly necessary.

A bloody, mattery, wheyish Urine, or that with Films, Bits of broken Membranes, or white Gravel, denote Stone or Gravel, or Symptoms of an Ulcer somewhere in the urinary Passages. Fat, which is observ'd upon the Top of the Urine, especially of consumptive People, signifies a wasting of the Body.

The third *Excretion* or Evacuation to be consider'd is *insensible Perspiration*, which is imperceptibly discharg'd through all the Pores of the Skin, and other Parts of the Body, being the *Recrements* of the second and third Concoctions, divested of all that can be of any farther Use to the Parts of the Body; the free and full exhaling of which, is as necessary to Health as any of the grosser Evacuations, being in Quantity at least equal to all that is evacuated both by *Stool* and *Urine*; and an Obstruction thereof is generally the Parent of all *acute* Distempers, as it is a Consequence of all chronical Disorders. But having fully treated of this Matter in another Place already, for farther Satisfaction herein, I refer the Reader to Page 99. Note *, Part II.

Nothing hinders and obstructs *Perspiration* more than catching of *Cold*, which is nothing but great Quantities of moist *Air* impregnated with *nitrous Salts* imbib'd through the Passages of *Perspiration*, by which means not only the Blood and Juices are thicken'd, but likewise *insensible Perspiration* is obstructed,
and

and immediately a small *Fever*, and a Hurry in the whole *animal System* succeeds; which oftentimes lays a Foundation for *Consumptions*, Obstructions of the great *Viscera* †, and an universal *Cachexy*, or ill Habit of Body. Therefore, in order to remedy this Disorder, and prevent the ill Consequences of it, we should lie much longer in Bed than usual, drinking small warm White-Wine *Whey* plentifully, with some few *Hartshorn-drops*, *Posset-drink*, *Water-gruel*, *Barley-water*, or any other warm small Liquors, taking twenty Grains of *Gascoign's Powder* Night and Morning, and at the same Time living low upon *Spoon-meats*, *Pudding*, *Chicken*, and drinking every Thing during the Height of the Illness warm; but if any Cough or Spitting should encrease, Bleeding should be perform'd, and to take now and then a little *Sugar-Candy*, *Oil of Sweet Almonds*, or a Solution of *Sperma Ceti*, to render *Expectoration* free and easy; and afterwards to be cautious of going abroad too soon, and without being well cloathed.

Gripes, *Purging*, *Colical Pains*, much *belching* of Wind, *Low-spiritedness*, *Yawning* and *Stretching*, are sure and certain *Indications* that *Perspiration* is deficient or obstructed; therefore, in order to remove these Disorders, we must have recourse to a greater Degree of *Exercise* and *Abstinence*, and to some gentle Purge or other, such as

Sena

† *Viscera*, signify any of the Bowels or *Intrails*.

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Sena and *Manna*, or *Rhubarb*, &c. to clear the *first Passages* of the Load that oppresses them, otherwise the Person will suffer at last; and, as *Sanctorius* observes, Wind in the Body is nothing but *Perspiration* † obstructed.

The fourth *Evacuation* to be considered is the *Semen*, consisting of a *white, hot, spirituous, thick, clammy, and saltish Humour*, which is elaborated in the *Testicles* and *Epididymes*, out of the purest and most spirituous Parts of the Blood. Considering it therefore in this Light, Moderation in *Coition* is absolutely necessary, both for the Preservation of Health as well as Pleasure; for in Immoderation we do not consult *Delight*, but *Lust*, and lose the Pleasure by being too intent upon it: And it is certainly true, that those *Parents* who are most continent, have more and the most healthful Children; for they meet their *Pleasure* by *Necessity*: In these it cheers the *Heart* and *Spirits*, and makes them breath free and easy; it appeases *Melancholy* and *Sadness*, mitigates *Anger*, and disposes to *Rest*. But then that Moderation receives its Difference very much from the different Temperature of *Constitutions*; for less is sufficient for the *Melancholy* and the *Cholerick*, the *Old* and *Emaciated*; but more for the *Sanguine* and *Plethorick*, and those of a middle and flourishing Age: The *Feverish* in any kind of *Constitution* must avoid

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† Aph. xiii. Sect. 3.

void it, and likewise they who are subject to the *Gout*, and Diseases of the *Joints*.

On the other Hand, the immoderate Use of *Coition* not only hinders *Perspiration*, by keeping the *Fibres* too strait, and lessening the Passages, and thereby giving rise to all the Disorders which attend an obstructed *Perspiration*, but likewise it disorders and weakens that due *Tension* and *Elasticity* of the *Solids*, upon which depends a right Discharge of all the *animal Functions*. I say, therefore, whatever weakens this *Disposition* of the *Solids*, cannot but very much prejudice the whole *Constitution*. And that all violent Actions, such as that of immoderate *Coition* is, are destructive to the *Textures* of the *Solids*, cannot be doubted; for their constituent *Fibres* or *Threads* will not only be much injured in their *Contextures*, but also that *animal Oil* or *Spirit* which nourishes them, and facilitates their *Motions*, will be so much press'd out and wore away, as to disable them very much afterwards in their natural *Motions*; and the Body will be, by that means, so weaken'd and dispirited, that the several Parts will not be able to discharge their respective Offices, whereby *Digestion*, *Concoction*, and all the natural *Evacuations* will be disordered.

Hence follow a Dissolution of *Strength* and *Spirits*, *Dulness* of *Memory* and *Understanding*, *Dimness* of *Sight*, Diseases of the *Nerves* and *Joints*, as *Palsies*, and all kinds of *Gouts*, *Weakness* of the *Back*, and *Consumptions*;
Seminal

Seminal Weaknesses, and sometimes bloody Urine; a deprav'd *Appetite* and *Head-achs*, with a great many other Disorders needless to be mentioned here; and, to conclude, there is nothing that so wonderfully shortens human Life, as the immoderate Use of *Venery*.

In the fifth Place we are to consider the *Menses* as a necessary *Evacuation*, which are *Excretions* of arterial Blood every Month from the *Womb*: They begin usually when young Maids grow ripe at fourteen, and sometimes at twelve, but very seldom before: They cease naturally in *pregnant* Women, and those past bearing Children, and likewise those that give suck; yet it happens sometimes that *pregnant* and *suckling* Women have them.

The Quantity of them ought to be in proportion to the Quantity and Heat of the Blood; but, generally speaking, a certain Quantity cannot be limited, for some have a great many, and some but a few; nor do they continue upon all alike; some have them two Days, some three, some four, some six or eight Days.

They that have them too much are weaken'd, and their Blood being rendered *crude*, watery, and pale, are subject to *Faintings* and *Waste*: Those in whom they are suppress'd, become *hysterical* and breath difficultly, look pale, and lose their Appetite, and fall into *Fevers*, *Inflammations*, and a

great many Diseases, both *acute* and *chronical*, if they are not timely remedied.

There are other *Excretions* which could not conveniently come in under the foregoing general Heads; such as *Sweat*, *Spittle*, *Mucus* or *Snot*, *Tears*, and the *Wax* in the Ears.

Sweat is a thin serous *Fluid*, mix'd with some *Sulphur*, a good deal of *briny*, but more *volatile Salt*, and a very little *Earth*: And the same Properties being found in *Urine*, we may conclude, 1. That *Sweat* and *Urine* may supply each other's Defects: Accordingly we find, that as *Sweat* is promoted, the *Excretion* of *Urine* is diminished, and on the contrary. 2. That they may be provoked by the same Remedies: Thus *Diaphoreticks*, or such Medicines as promote *Sweat*, failing to answer their Intention, prove *Diureticks*; that is, purge by *Urine*. 3. That *Sweat* carries off many of the sharp *Salts*, with which the Blood abounds, and by that means may accidentally prevent or cure many Distempers, is not to be doubted.

Sweat therefore differs very much from *insensible Perspiration*; for if it be encreased, and its Vessels enlarged, *Perspiration* must unavoidably be diminished, and its Vessels compress'd. *Perspiration* also is turn'd into *Sweat*, by violent Motion, and too much Heat, tho' by moderate Motion and gentle Heat it is very much promoted; but nothing can be more serviceable to promote it than gentle *Friction* of the Skin for some Time
Night

Night and Morning, as I shall observe in a another Place.

The *Saliva* or *Spittle*, (of which I have given a Hint before) is a thin transparent *Humour*, almost void of Smell and Taste, which will entirely evaporate by Heat, but not curdle ; and when shaken affords a ropy Froth. It is separated from the purer Part of the *arterial* Blood or *Serum* by the *Glands* ; and when a Person is hungry it flows in great Quantities, and is then more fluid and sharp ; after long fasting it is very penetrating and detergent ; it ferments with *Bread*, *Meal*, or *Syrup*, and promotes Digestion. Men, as well as Brutes, swallow it in Health, and likewise when asleep : When too much of it is spit out, it occasions loss of Appetite, slow Digestion, and an *Atrophy* or *Consumption*. It is composed of *Water*, *Salt*, *Oil*, and *Spirit*, all which can be extracted from it, which renders it *saponaceous*, or of the Nature of *Soap*.

This *Fluid* then being press'd out of the *Glands*, lays the first Foundation of assimilating the Food to the Body, and promotes the Mixture of *oily* and *aqueous* Substances, and a Solution of *saline* ones : It also promotes Fermentation, excites an intestine *Motion* of the Parts of the Food in the *Stomach* ; so that *Digestion* could not be perform'd without it.

Therefore as this Fluid is of such great Use, when mixed with our Food, it ought not to be

lavishly spit away ; for when it is swallow'd, having perform'd its Office in the Mouth, and being return'd into the Blood, it is still farther improved by repeated *Circulation* and *Digestion* ; and when separated in the *Glands* again, is highly amended.

Hence it is manifest, that they who immediately upon eating fall a smoaking or chewing of *Tobacco*, as is generally the Custom here, and that even among People of the better Sort, commit two very great Errors, highly destructive to their own *Constitutions* :
1st, In diverting the *Saliva* or Spittle from its natural Offices, by spitting it away in smoaking or chewing, being one of the chief *Menstruums*, or *Medium*, for promoting *Digestion*, as I have just now demonstrated.
2dly, In using that *stupifying American Henbane* upon a full Stomach, which, besides the great Injury it does *Nature*, in depriving her too much of that necessary Fluid the *Saliva*, has also an *intoxicating* opiate Quality, by which (as all other Opiates do) it destroys the Appetite and hinders Digestion, the Truth of which is evident to all good Practitioners in *Physick*. Therefore, I sincerely advise all those who have any Regard for the Preservation of their own Health, to avoid carefully this pernicious Custom, and never to smook but upon an empty Stomach, or at least till the greatest Part of the Food is out of it, which always requires some Hours after eating ; and, even then, no Body except *gross*
and

and *phlegmatick* People, should smoak at all ; because *lean, thin, scraggy, dry, and cholerick* Constitutions are heated and dry'd too much by it, which throws them oftentimes into Consumptions or other Decays.

Mucus, or *Snot*, is a clammy and viscid Humour, which flows from the Extremities of the *olfactory Nerves* * through the *Os Cribriforme* † into the *Nostrils* and *Palate* : It also signifies that slimy Liquor, or *Mucilage*, which daubs over and guards the Bowels, and lubricates the chief Passages in the Body from being corroded by any *saline* or sharp Humours ; but the Superfluities of it are excreted by the *Nostrils* and *Intestines*.

Tears are a serous Humour, prepared out of the *arterial Blood* in the *Lachrymal Gland* ‡, and are of a *saline, watery, clear, and smooth* Disposition, discharged always in a small Quantity, but more plentifully when the *Eye* is rubbed or compressed by the *Orbicular Muscle* ||. This Humour serves to moisten,
U 4 wash,

* Are those *Nerves* which give the Sense of Smelling.

† It is a Bone full of small Holes, like a *Sieve* : It is also called *Os Ethmoides*, situated in the Middle of the Basis of the *Os Frontis*, or Forehead-Bone.

‡ It is a pretty large conglomerate *Gland* or *Kernel*, being broad, compress'd, rough, and placed within the Orbit, towards the outward *Angle* of the *Eye*, near the rough Chink, and inclosed in Fat ; is endowed with *Arteries, Veins, Nerves, Lymphaticks*, and *Ducts*, which carry a Humour to the *Eye* prepared from the arterial Blood.

|| It is the Muscle which serves to join the *Eye-lids* together, contracting them like a *Sphincter*, and by a strong Contraction presses the Ball of the *Eye*, and squeezes out Tears upon the external Superficies of the *Eye*, which is thereby cleansed of its Filth, and the *Eye* itself washed.

wash, and render the *Eye* slippery, and prevents it from sticking to the *Eye-lids*: It likewise serves to wash off any Filth or external Bodies, which, by adhering to the *Eye*, might cause Pain, or darken the *Sight*; but if this Humour be too much, so that it cannot be received by the *Lachrymal Points* *, it flows from the *Eyes*, and is called *Tears*.

Cerumen, or *Ear-wax*, is the Excrement of the *Ears*, which sweats or ouzes out of the *Cartilages* and *Glands* bordering upon the *Ears*: It consists of Abundance of *Salt* and *Sulphur*, which gives it its Bitterness: It serves to hinder *Dust*, *Motes*, or little *Animals* from getting into the *Ears*.



C H A P. XII.

Of the Passions or Affections of the Mind.

I Shall briefly treat of the *Passions* here, not as a *Natural Philosopher*, but as a *Physician*; therefore I shall not consider their *Essences* and *Causes*, but their *Effects* and *Influence*

* They are Holes in the Bone of the Nose, by which the Matter that makes *Tears* passes to the Nostrils; but if these Holes grow hard and are stopp'd, from an Ulcer in one of the Glands in the Corners of the *Eyes*, thence arises a *Fistula Lachrymalis*.

fluence upon human Bodies, and how their Regulation conduces to the Preservation of *Health* and *long Life*. For as to the Manner how the *Mind* or *Thought* operates upon the Body, or how such a Constitution of the *Humours* can affect the *Passions* of the *Mind*, and what that *Tye* or *Bond* of Union is, between the *Mind* and the *animal Fluids*, is a Mystery unreveal'd to Man, being, at least mechanically, not reducible to Reason, it being impossible to represent and delineate, as we do corporal Substances, the several Steps and Ways of Procedure of those *Agents*, which can by no means be brought under the *Notice* of our *Senses*, only in their Effects; and therefore we cannot have any Notion of the Procedure by which they are brought about, as we can have of all those affected by *physical Agents*. But as it is certain that the *Passions* of the *Mind* do influence very much and alter the Constitution, especially when very sudden and intense, so far as necessarily to bring it under the *Physician's* Care, still the wisest must herein be contented to establish his Rules upon *Observation* and *Experience* only.

There is nothing more remarkable, than that violent *Passions* of the *Mind* waste and consume the *Spirits*, and plunge the Constitution into great Disorders; and this they seem to bring about by universally *stimulating*, *irritating*, and *twitching* the *Nerves* and *Fibres*, in such a Manner as disturbs their regular *Contractions*: And altho' we cannot positively

positively tell, either how *Thought* can produce such an Alteration in the Humours of the Body, or how such a Constitution of the Humours can affect the *Passions* of the *Mind*; yet if by constant *Observation* and *Experience* it can be found, that such a *Passion* or *Temper* of the *Mind* is always attended with such Consequences in the *Constitution*; and that such a particular *Temperature* of the *Constitution* always affects the *Mind* with such particular *Passions* and Dispositions, it will very sufficiently afford a Ground of Certainty to any considerable Person, in his Reasoning upon their Consequences, and in the Measures which ought to be taken in remedying the Disorders of either.

For Instance, if *Joy* or *Anger* are always found to render the Body lighter, tho' we cannot tell how these particular *Passions* do first modify any particular Parts of the Body, so as to produce that *Effect*, yet it being plain how *physical Agents* do the same, it will be most reasonable to conclude, that these do it also by the same Means; that is, thus far we know, that an Invigoration, or an Increase of the *contractile Force* of the *Solids*, will promote *Digestion*, increase the *Evacuations*, and render the Body lighter.

Therefore we have the greatest Reason to believe, when we see the same to be the Consequences also of a Person's being passionately angry or very merry, that these Dispositions of the *Mind* (altho' we know not how) do

do give that particular *Modification* likewise, and Degree of *Tension* to the *Fibres*, as *Cold-bathing*, a cold clear *Air*, or moderate *Exercise*, when we see them attended with the same Consequences.

But as we know these *physical Causes* have this *Effect*, by contracting and shaking the *Fibres* of the *Solids*, and thereby promoting their Power of *Elasticity*, and breaking the *animal Juices* finer; so it ought to be concluded, that these *Passions* of the *Mind* do likewise give the same *Modifications* to the *Fibres*, by which the same *Effects* are produced.

In like Manner, if *Fear* and *Sorrow* are found to be attended with an Increase of Weight in the Body, it is reasonable to think that they do it by the same Means as by which all those *physical Agents* produce the same *Effect*; that is, by slackening the *Fibres* too much, diminishing *Digestion*, and consequently by lessening the *Evacuations*.

Therefore when any *Passion* of the *Mind* is said to have this or that *Effect* upon the Body, we ought to consider that *Passion* only as a *physical Agent*; that is, as it contracts or slackens the *Fibres*, and as it increases or diminishes the *Evacuations*; but in this we are guided only by *Observation* and *Experience*, which is very sufficient to a Person of any tolerable Judgment.

The chief *Passions* of the *Mind*, from whence all the rest proceed, are *Joy*, *Grief*,
Anger,

Joy or *Mirth* is a Delight arising from some Good we suppose we have obtained; and this, above all the rest, conduces to Health, at least if it be moderate; for it keeps the *Fibres* in their natural *Tension*, assists the *Secretion* and *Derivation* of the Spirits to all Parts of the Body, and consequently promotes the *Circulation* and *Digestion*, and raises thereby a plentiful *Perspiration*, and renders the Body lighter; but immoderate *Joy* is very injurious, and proves sometimes mortal, the *Spirits* being thereby too much raised, and by the Suddenness of the *Passion* too much rarefied beyond their natural Standard.

Grief or *Sorrow* is a troublesome Languishment afflicting the *Mind*, arising from the Apprehension of some Ill happened or befalling us: By it the *Spirits* in the *Brain* and *Nerves* move slowly and very feebly; so that it produces a great Weight in the *Breast*, *Suffocation*, and oftentimes Death, when sudden and extreme.

Anger is the Desire of *Revenge*, upon the Apprehension of some Injury done or offer'd to us: By it the *Spirits* are violently agitated in the *Brain* and *Nerves*: It encreases the natural Heat, and, if moderate, it may be useful sometimes, in order to stir up a brisk Circulation of the languid *Fluids* in a cold and phlegmatick Constitution, by which means
the

the Body is rendered lighter ; that is, it will then perspire better : But, on the contrary, *Anger* is pernicious to *hot, dry, and cholerick* Constitutions ; because, in such it will dissipate the *Spirits* and dry the Constitution too much.

Love is a certain *Passion* of the *Mind*, excited in the *Soul* by the Motion of the *Spirits*, arising from an Object which we judge to be *good, convenient, delectful, and amiable* ; so that the proper Effects of *Love* consist in this : That we consider ourselves as united to the Object we love, and that it is, as it were, another Part of us.

Love may be properly distinguished into three Kinds : 1. The *first* is *spiritual*, as the supreme Love of the *blessed Author* of our *Being*, (to which our Love to all other created *Beings* is subordinate, at least it ought to be so,) which is that *Union, Tendency, Bias, and Impulse* of the *Soul* and other *Spirits* towards their *blessed Creator*, without any indirect *Ends*, without *Deceit* or *Dissimulation*, for his own Sake ; because he is infinitely *good, infinitely amiable, and infinitely perfect*, abstracting from all other Considerations, even that of our own Happiness, in the Enjoyment of, or Union with him. Yet it is certain that these *two*, our Love to God and our own Happiness, cannot be actually separated : And this Love was communicated by him to them in their *original Formation*, by Virtue of which they constantly *tend, press, and urge* to unite ; and,
if

if Obstacles were removed, would unite with one another, and so be all united with their *omnipotent Maker*. But now, alas! this *Principle of the intelligent Soul*, in this her *lapsed State*, being drowned in Sense, chain'd and fetter'd by Ignorance and Perverseness, drawn and hurried away by the *Devil*, the *World*, and the *Flesh*, is disabled from exerting this *inherent and innate Principle of Reunion*, and wants sufficient Light on the *Understanding*, and a right Turn of the *Will*, to be put in a Capacity of exercising it; but in its proper *Vacuity*, and being freed from these *Letts and Impediments*, it would unite with its first *Author*, the *Centre and Rock out of which it was hewn*, and mount towards him like an *Eagle* towards the Sun.

And even in this our lapsed and forlorn State, there remain evident Footsteps of this *innate Principle* still uneffaced; such are the Checks of *Conscience*, *natural Affection*, and the universal Desire of *Immortality*, and the Dread of *Annihilation*; and the *Worship* bestow'd by all Nations, who are not sunk into mere *Brutality*, on some superior and *invisible Powers*: I say, these are Remains of this *Principle*, and its Operations, sufficient to shew its Reality *à posteriori*, as the Laws of *Analogy*, and the *Nature and Attributes* of the *first Being*, shew it *à priori*. For the Author of *Nature*, who created *intelligent Beings* only in order to make them *happy*, could not leave them to so many different *Attractions*,
without

without implanting into their *Essence* and *Substance*, as an *Antidote* to so many *Distractions*, an infinite *Tendency*, *Bent*, and *Biafs* towards *Beings* of the same Nature, and towards himself, who was the *Cause* and *Object* of their *Felicity*: And those, who admit of *Revelation*, cannot doubt of it a Moment. *Moses** calls it, a *Law engraven on the Heart of Man*; and *St. Paul* †, the *greatest Perfection of human Nature*; whatever Men of *Self-love* and carnal Minds may think of it otherwise.

The *Second* is *Human*, towards particular *Persons* and *Things*, as *Parents*, *Wife*, *Children*, *Friends*, or *Things*. Towards the *first*, Love ought to be sincere, hearty, constant, begotten, continued for their Sakes, and not for our own; but yet it should be limited and subordinate, with a due Submission to the *Will* and *Love* of *God*: That to *Things* is not to be fixt, but changeable, as *Necessity* requires for our Support and Use; because the *Things* themselves are so; which we are to love, as if we loved them not, according to the *Apostle*.

The *third* Sort of Love, is that which is shewn from one *Sex* to another, and ends in *Matrimony*: This is naturally imprest upon us, and it is carefully to be preserved from *Dotage* and *Lust*; for when it takes Fire from the last, it is never permanent, but soon cloyes itself, and vanishes upon *Satiety*: Reason is here lost, which is the principal Cause of so many unhappy Marriages we so frequently

* Deut. xxx. 14.

† 1 Cor. xiii.

quently see. As to *Dotage*, it is an impotent and unreasonable placing of the *Affection* upon another, which gradually draws all the Faculties, both of the Soul and Body, into a *Languor* and Consumption, oftentimes producing *Lunacy* or *Madness*.

However foreign this *metaphysical Speculation*, concerning *spiritual Love*, may seem to a *physical Treatise* about Health, which I proposed to avoid in the Beginning of this Chapter; yet having seriously and attentively consider'd the Matter since, I found it both useful and necessary; because, if we steadily believe it, and reduce its natural Consequences to Practice, it will not only become the most effectual Means to prevent Diseases, but also the most powerful of any Thing to promote *Health* and *long Life*, which I shall evidently make appear, before I finish this little Chapter.

Hatred is the Apprehension of an Object which we judge hurtful or inconvenient: It is likewise Sorrow for the *Good*, and Chearfulness for the *Ill* of another. It occasions a slow and unequal *Pulse*; a sharp and stinging Heat, intermix'd with Cold piercing the Breast; the Stomach ceases from its natural Office, so that the Food being thereby crude and indigested, produces *Nauseas* and *Vomitings*, or is converted into corrupted Humours in the Habit of the Body, which are oftentimes the Parent of many grievous Diseases.

Shame

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Shame is an Uneasiness of Mind upon Account of having done something that is unseemly, or that lessens one's Esteem among others: It is likewise a great Apprehension of *Scandal*: The *Humours* and *Spirits* being thereby variously agitated and confounded, frequently plunges the Body into fatal Disorders.

Hope is a Desire of some future *Good*, which seems difficult to be obtained, but yet possible. By it a great Flow of *Spirits* tends to the Heart, which quickens its Pulsation, and accelerates the Motion of the Blood. And this *Affection* oftentimes prevents the ill Effects of other *Passions*, such as those of *Grief* or *Sorrow*, *Hatred* and *Despair*, &c.

Despair is a Passion of the Mind arising from the Apprehension of some *Good*, which we judge impossible to be obtained. In *Despair* the Pulse is generally very obscure, unequal, and sometimes almost lost and creeping, the spirituous and most fluid Parts of the Blood being dissipated, so as to leave the *Salts*, *Earth*, and grosser *Oil* in too great a Proportion in the Body, which at last affect the tender Vessels of the *Brain*, by the *Viscidities* of the Matter impacted in them, that thereby the Imagination is disordered. Thus dark *Melancholy*, slow and long *Grief*, hopeless *Love*, and presumptuous *Pride* (which is a violent Degree of *Self-Love*) impair the Body, by causing the proper Times of necessary Food and Exercise to be neglected.

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and thereby depriving the *natural Functions* of their usual Supplies, overworking and wearing out some Part of the *nervous System*, and leaving the other, as it were, to rust, and so become too rigid and stubborn for want of Use : Besides, some of the *Passions*, as *Pride*, *Love*, and *Grief*, when immoderate and intense, terminate oftentimes in *Lunacy* and *Madness* ; nay farther, even the Frequency and daily Increase of wanton and common *Self-Murderers*, are chiefly produced by these inordinate *Passions*, and their *blasphemous* and *frantick Apologies* grafted on the Principles of *Infidels*, and propagated by their *Disciples*, scarce known or heard of, at least not practised, in any *Christian Nation* but this, and her *Daughters* ; for it is a manifest Truth, that those who have no Notion or Thought of a future State, with regard to either Happiness or Misery, cannot have the true Love of God ; and therefore such will always give a full Scope to all the Excesses of their brutish *Passions*, till at last, through some Disappointment, or Despair in gratifying their *Sensualities*, they most atrociously lay violent Hands upon themselves, contrary to the very Dictates of both the *Law of Nature* and their own Reason, *revealed Religion* being always a mere *Phantom* in the Thoughts of all such unhappy Wretches ; and thus, alas ! they wantonly destroy both *Body* and *Soul* at once.

The

The *Passions* may be divided very properly into *acute* and *chronical*, in the same Manner, and for the same Reason, as Diseases are. The *acute Passions*, either pleasurable or painful, produce much the same Effect, and act much after the same Manner, as acute Diseases do; for they cause a brisk and lively Circulation of the Fluids, and brace up and contract the Solids for some Time. Thus sudden Joy, Grief, Pleasure, or Pain, stimulate and contract the nervous *Fibres*, and the Coats of the animal *Tubes*, and thereby accelerate the Motion of the included Fluids, for the same Time; but as the Motions of the *Heart* and *Lungs* are involuntary, they produce their more immediate Effects upon them; so that both sudden Joy and Grief occasion short and quick Breathing, and a small and frequent Pulse.

A sudden painful *Idea* renders a quicker Circulation of the Blood, whereby a greater Quantity of it is thrown upwards, through the larger Branches of the *great Artery*, from the Heart, and makes it appear in the superficial Vessels of the Face, Neck, and Breast, which produces what we call a *Blush*. Thus we see that the Reasons why we *sigh* upon some Occasions, and *blush* at other Times, depend upon the different Structure of the *Heart* and *Lungs*, being the Organs of Pul-
sation and Respiration; for a quick surprizing Pain of the *Mind* acts immediately upon the *Heart*, because its Motion is altogether invol-

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luntary;

luntary; so that any sudden *Contraction* takes Place there directly, to accelerate the Pulse. On the other Hand, we have some Power over the *Breathing*; for we can retain it for a little while; because, when we think intently, our Attention is partly the Cause of retaining our *Breath*, from whence proceeds *Sighing* rather than *Blushing*.

The Effects of the Suddenness of these *Passions* being thus accounted for; yet when they become extreme, they drive about the Blood with such Violence, that Nature is overwhelm'd, like a Mill by a very great Flood; infomuch that what drove it only brisker round before, intirely stops it now, and renders the Complexion pale and ghastly. Thus sudden and great *Fear* or *Grief* so much convulse the whole System of the *Nerves*, that they alter the very Position of the Parts sometimes, and fix them in another Place; so that in a great Fright the Hair stands upright, and the whole *nervous System* becomes so stiff and rigid, that they lose their *Elasticity*; by which Means the *animal Functions* cease from all Motion, and then Fainting, and oftentimes Death succeeds.

Chronical Passions are called all those slow *Passions* of a long standing, which, like *chronical Diseases*, waste, wear out, and consume the *nervous System*; for those *Nerves* which are necessary for administering Ideas to the Imagination, being constantly employ'd, are impair'd, broken, and worn out; and the
rest,

rest, for want of being used, become stiff and unactive, dull and destitute of a sufficient Quantity of warm Blood and due Nourishment, as I have observed already ; so that the whole Fabrick languishes, and runs into a total Decay at last.

But as the *Passions*, when slow and long continued, relax, unbend, and dissolve the *nervous Fibres* too much, so the violent and sudden ones contract, stretch, and bend them in too great a Degree, by which means the Fluids are hurried about with violent Rapidity ; so that all the *Secretions* are either stopp'd by the *Contractions*, Cramps or Convulsions produced by those *Passions*, or are precipitated crude and indigested into the Habit of the Body, and so beget, or at least dispose it to, Inflammations, Fevers, and Mortifications : For Example, a sudden and high Degree of *Anger*, *Hatred*, and *Malice*, are but Degrees of Frenzy, and *that* is one kind of a raging Fever. Hence it is evident, that the violent and sudden *Passions*, which I call *acute*, are more dangerous to Health than the *slow* and continued chronical ones, as acute Diseases are more pernicious than chronical.

From what has been said, it is manifest that the *Passions* have very great Influence on *Health*, being of such Force as not only to hurry us into Numbers of Diseases, but likewise to bring upon us oftentimes sudden and unprovided Death. But if we would prevent

the ill Effects, and totally extirpate all the Evils arising from our *Passions*, we must necessarily lead a sober and virtuous Life; make use of our Reason, which, assisted with the *Divine Spirit*, is able to keep down the Surges of all our *Passions*, and is given us, by the infinitely wise Creator, to be a Check and Bridle to prevent and restrain all their Extravagances: So that notwithstanding the great Force of our *Passions*, yet are we not left without a sufficient Power of Resistance; but to yield to them for want of exerting that Reason, by which we might restrain them, would be base Cowardice, unworthy a rational Being, and the blackest Ingratitude to the glorious Author of all Happiness. Towards him all our Thoughts should be bent; in him all our Hopes should center: Nor should our Affections cease flowing to him incessantly, not only as he rewards and recompences Virtue, but as it is a Remedy against all those various Diseases that are ingender'd by Excess in the Passions: For as the Love of God is a sovereign *Antidote* against all other Miseries, so, in particular, it prevents effectually all the bodily Disorders the *Passions* produce, by keeping them within due Bounds; and, by that unspeakable Joy and perfect calm Serenity and Tranquillity it gives the Mind, becomes the most powerful of all the *Means* of Health and long Life. Therefore, if thou wouldst enjoy good Health, love thy Creator, keep thyself virtuous, and regulate thy Passions.

I shall

I shall conclude this Chapter with an excellent Passage upon this subject, from Dr. Cheyney's *Essay on Health and Long Life*, which, in his own Words, is as follows.

' If Men would but observe the *Golden*
 ' *Mean* in all their Passions, Appetites, and
 ' Desires; if in all their Thoughts, Words,
 ' and Actions, they would but mind, I will
 ' not say the End of their Being and Exi-
 ' stence here, but the End to which their
 ' Thoughts, Words and Actions, tended in
 ' their last Resort; and lastly, if in the Gra-
 ' tifications of their Appetites, Passions, and
 ' Desires, they followed the uncorrupted
 ' Dictates of *Nature*, and neither spurred her
 ' on beyond her Craving, nor too violently
 ' restrain'd her in her innocent Biass; they
 ' would enjoy a greater Measure of Health
 ' than they do, have their Sensations more
 ' delicate, and their Pleasures more exqui-
 ' site, live with less Pain, and die with less
 ' Horror. For had it not been for the Lewd-
 ' ness, Luxury and intemperate Gratificati-
 ' ons of the Passions and Appetites, which first
 ' ruined and spoiled the Constitutions of the
 ' *Fathers*, whereby they could communicate
 ' only a diseased, crazy, † and untuneable
 ' Carcass to their Sons; so that with the
 ' World's Decay, vicious Souls and putrified
 ' Bodies have, in this our *Age*, arriv'd to
 ' their highest and most exalted Degrees; I
 ' say, had it not been for these Evils, there

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' never

† The Temperature of Humours in an animal Body.

‘ never had happen’d so much Sickness, Pain
 ‘ and Misery, so many unhappy Lives, and
 ‘ such wretched Ends, as we now behold
 ‘ among Men.

‘ But even in this our lapsed Estate and
 ‘ Condition, had the Dictates of Nature and
 ‘ Reason, not to say Religion, been follow-
 ‘ ed, we might have pass’d our Days in In-
 ‘ dolence (at least from *chronical* Distem-
 ‘ pers) if not innocent Pleasures, arriv’d at
 ‘ a good *old* Age, with our Senses free, and
 ‘ our rational Faculties clear, and at last de-
 ‘ parted in Peace, as a Lamp goes out for
 ‘ want of Oil. And let the Gentlemen of
 ‘ Wit and Fire, of Banter and Sneer, hug
 ‘ themselves ever so much in their boasted
 ‘ Tranquillity and Security, gratify their Pas-
 ‘ sions, Appetites, and Humours to the full,
 ‘ and despise Futurity and Whining; I dare
 ‘ promise when the *Farce* is ended, and the
 ‘ last Minutes are drawing on, they would
 ‘ prefer a *Life* thus led, and an *End* so calm,
 ‘ to all the Pleasures of *Lewdness* and *Sen-*
 ‘ *suality*, and the Bounces of a false and ig-
 ‘ norant Security.”



A

GUIDE *to* Health, &c.

PART III.

CONTAINING

The Definitions, Diagnosticks, Prognosticks, and curative Indications both Medicinal and Dietetical of acute and chronical Diseases; with the Nature and Use of BATHING and FRICTIONS.

INTRODUCTION.

BEFORE I proceed upon Fevers, as mention has been so often made, of *acute* and *chronical* Diseases, it will not be improper to give the *English* Readers a clear Account of their Nature and Difference in this Place.

Acute Diseases then are such, as within some short limited Time have their *Periods* either of a perfect *Crisis* and subsequent Recovery, or of putting an End to *Life* and
the

the Disease both together; and they are therefore called *quick, sharp, or acute* Diseases, being attended with an increased Velocity of the Blood; the Symptoms of which are more violent, their Duration shorter, and their *Periods* more quick, terminating either in a sudden Death, or a Victory over the Distemper, and they are generally limited within *forty Days*.

But those Diseases that run out longer become *chronical*, whose *Periods* are more slow, their *Symptoms* less severe, and their Duration longer: and they likewise would, by the Course and Efforts of Nature, and the *animal Oeconomy*, have their *Periods*, and terminate at last, if fresh Fuel had not been frequently added to them by *Intemperance* and *Debauchery*; for the Viscidity of the *Fluids*, and the *Laxity* of the *Fibres*, would be removed in time, by proper Remedies and a due Regimen, and so People would recover in these as well as in *acute* Disorders.

But as this requires long Time, much Care, and great Caution, Patience, and Perseverance; and so long and continual a Course of *Self-denial*, that few People are willing to undergo it; so that it is become the Reproach of both *Physick* and *Physicians*, that *acute* Cases are cured by themselves, or rather that Nature cures them, and that *chronical* Disorders are never cured, as a great many do
falsly

falsly assert: for in *acute* Cases, Art and Care judiciously and timely applied, will always assuage the *Symptoms* and Suffering, and likewise forward Nature to the Relief she points out, and hasten the *Crisis*, which it will constantly bring about if the *Disease* is not too great for the *Constitution*; and even then it will allay the Pain, and lay the Patient gently down.

And as for the last *Case*, if due Care be had to follow seasonably the Advice of an honest and experienced *Physician*, certainly a *Period* may be brought about in most *chronical* Diseases, provided the great *Viscera* or Bowels are not spoiled and destroyed. And the Fault is commonly in the Patient himself, who will not, or cannot deny himself for a sufficient time to bring about the Cure.

There are some *chronical* Diseases indeed, such as either by having been gone too far, or by being hereditary, and interwoven with the *Principles* of Life, are never to be radically cur'd or got over: and these last must rest contented with that Measure of Health their original Frame will admit of. Yet I am morally certain, that if the *Rules* and *Directions* set down in this *Treatise*, be carefully and constantly observ'd and steadily pursued, very few *chronical* Distempers but will receive such Relief and Ease by them, as to render the remainder of Life tolerably easy, and free from grievous Sufferings: and that

is all that is left for *Art* to do in the above-mention'd *Case*. But in other *chronical* Diseases, where the *Bowels* are not quite viciated, and taken in due time, by observing and steadily following the same Rules, would infallibly bring about a perfect Cure.

In *acute* Diseases, a quick Pulse is a certain and distinguishing Sign; but in *chronical* Cases it is slow: and the first consumes the Fluids, and wears out the Solids in a short Time; but the last will require a longer Time to produce the same Effects. Some *acute* Diseases terminate sometimes in *chronical* ones; and some *chronical* Distempers towards the last fatal Period of Life turn acute.



CHAP.



C H A P. I.

Of FEVERS, *both in general and particular.*

A *Fever* is an inordinate Motion, *A Fever* and too great an Effervescence *what.* of the Blood, attended with Cold first, and afterwards with Heat, Thirst, and other Symptoms, whereby the *animal Oeconomy* is variously disturb'd; or according to our *English Hippocrates*, Dr. SYDENHAM, Sydenham's
 ' A *Fever* is nothing else but the *Definition.*
 ' Effort of Nature to free herself of some
 ' morbidick Matter, which she finds injuri-
 ' ous, in order to establish a better Health."

The learned *Boerhaave* says, that *Boerhaave's* a *Fever* is the most frequent Di- *Sentiments.* stemper that happens, an inseparable Companion of Inflammations of all kinds, and is ever attended with a manifold variety of Symptoms.

In every *Fever* from an internal *The Symptoms.* Cause, the three chief observable Symptoms are, first, an universal Trembling, then a quick Pulse, and an increased Heat, various as to Time and Degrees. When the Symptoms are very urgent, and very hastily make their Progress, the *Fever* is called *acute*; but when more mild and gentle, it is denominated

minated a *slow Fever*. And a *Fever* almost always begins with a sort of cold Shivering, soon after the Pulse growing quicker, affords the primary *Diagnostick* * of a *Fever*; so that an increased Velocity of the Contraction of the Heart, together with a greater Resistance at the capillary Vessels, make up the Idea of an *acute* Distemper, which may be produced by an infinite number of Causes. The Health of the Patient seems to be the primary Aim of Nature in *Fevers*; notwithstanding, *Fêvers* often end in Death, and sometimes they degenerate into some other Diseases.

The general Cure. The general Cure of *Fevers* is summarily comprehended in consulting the Strength of Nature, in correcting and discharging *Acrimony* from the Blood, in dissolving gross Humours, and expelling them, and in mitigating the Symptoms: and if we perceive the Symptoms to run high, and Nature to grow exorbitant, we moderate it by enjoining Abstinence, a slender and cooling Diet, drinking tepid Water a little acidulated, Bleeding, cooling Clysters, &c. But if Nature seems to be too sluggish, she is to be excited by Cordials, Aromaticks, and Volatiles, &c.

Of the Symptoms. The Cause of the *Fever* being taken away, the Symptoms will cease, in as much as they primarily depend

* Is that Judgment of a Disease that is taken from the present Symptoms, and Condition of the Patient.

pend upon it ; so that if they can be born without Danger of Life, they scarce require any particular Cure, nor many times are they to be interrupted without great Caution ; but if they be unseasonable, and too violent, they are to be mitigated with proper Remedies, due Regard being had to the Cause and State of the Distemper.

In the beginning of *Fevers*, if the Stomach has a natural Inclination to cast, it is absolutely necessary to give a Vomit ; for else in the Progress of the *Fever*, a Looseness will be apt to break forth, which may be of dangerous Consequence : and the proper time to give an *Emetick* is indeed in the Beginning ; however, if it should happen to have been omitted, it may be given at any time of the Distemper, provided there be sufficient Strength to bear the Operation, and after it some *Anodyne*, or quieting Medicine. Afterwards, if Bleeding be not indicated, and there be no Looseness, a Clyster may be administer'd every other Day, until the tenth or twelvth, at which time Nature inclining towards a *Crisis*, in my Opinion, some warming Medicines may be given to hasten the Concoction. If the feverish *Ebullition* proceeds regularly, and in due order, there seems to be no need of giving any Medicines at all ; for as much as the Depuration of the Blood is wholly and solely the Work of Nature.

The Benefit of exhibiting a Vomit.

Commonly

A Purge may be given towards the End with Advantage.

Commonly about the 15th Day, if there be a laudable Separation in the Urine, and a Remission of the Symptoms, a gentle Purge ought to be given, lest the noxious Humours secreted from the Blood being absorbed again into it, should cause a Relapse; notwithstanding it is sometimes requisite to defer the purging until the 17th Day.

From repeated Trials, I affirm, that nothing does so certainly and powerfully cool the Body as Purging after Bleeding; and any one may find it in Experience true, that it abates and allays a *Fever* beyond any Remedies whatever, both as it cleanses the Intestines, and prepares the Way for an *Anodyne*. Sydenham in his *Schedula Monitoria*.

The Cause of Fevers.

The Cause of a *Fever*, according to *Hippocrates, De Medic. Vet.* ‘ is not Heat alone, but Heat and Bitterness together, Heat and Acidity, Heat and Saltness, and an innumerable other Combinations in the Blood.” It is however known by Experience, that Persons from sound and perfect Health, where there has been neither *Plethora*, nor any ill Habit of Body to cause it, have fallen into a *Fever*; because some very extraordinary Change in the Air, or an Abuse in some of the rest of the *Non-naturals* have happen’d; therefore sound Bodies on such Occasions may, and are seized with a *Fever*, in order that their Blood

Ch. I. thro' the various Stages of Life. 337

Blood may acquire a new State and Condition to accommodate itself thereby to the Alteration of the Air, and the Way of Living, &c.

By how much the more *acute* a *Fever* is, by so much the more *A Rule of Diet.* sparing and slender the Diet ought to be; for in *Fevers*, tho' they lie many Days without eating any thing, it is so much the better, for no one ever starv'd to Death in a *Fever*; but rather upon eating and drinking the *Fever* would be exasperated; because in taking of Food, the Appetite prescribes the Rule, the Quantity, the Quality, and the Time.

The most natural and general Division of Fevers is into *Essential* *Division of Fevers.* and *Symptomatick*.

An *essential Fever* is such, whose primary Cause lies in the Blood itself, which derives its Original from no other Distemper of the solid Parts of the Body, or is any way depending on them, and this is properly called a *Fever*.

A *symptomatick Fever* is a secondary Fever, which does not properly subsist of itself, but owes its Original to the Disorder of some particular solid Part, and most commonly depends on some remarkable Inflammation, from whence the Variety of inflammatory Fevers so called.

An *essential Fever* is divided into a *Diary* or *Ephemera*, a *continual*, *continent* or *remitting*, and an *intermittent Fever*.

A *Diary* or *Ephemera*, so called by the *Greeks*, is the least compound of Continual Fevers, which doth begin, increase, arrive at its Height, and decline within the Space of 24 Hours: It is occasion'd by the scorching Heat of the Sun, too much Exercise, or by some other Error committed in the *Non-naturals*. The Cure is easily perform'd by Abstinence, Rest, and Diluting. But if the said *Fever* lasts several Days, it is called a *continual*, not *putrid* Fever: Its Causes, Signs, and Cure, are the same, and chiefly require large Bleeding, and a cooling Diet and Medicines.

A continual *putrid* Fever, call'd by the *Greeks*, *Synochos*, is that Sort of *Fever* which is continual, without any distinct *Paroxysms* or Remissions, but for many Days continues much the same, until it has run its full Length, and then its Period is determin'd; and it is distinguished from the *preceding*, by its being * *putrid*: of this Kind are malignant Fevers, pestilential Fevers, and even the Plague itself.

The Causes. It proceeds from the following Causes, as slight Inflammations, an Obstruction of the Bowels, a Constriction of the

* A Fever is said to be *putrid*, where the Humours or Part of them have so little circulatory Motion, that they fall into an intestine one and putrify, as is commonly the Case after great Evacuations, or great and excessive Heat, where there is such a Scarcity of Spirits, that the Solids cannot sufficiently *vibrate*.

the Pores of the Skin, a Stoppage of almost all the capillary Vessels, and a very sharp Acrimony in the Fluids.

It is known by an intense Heat even to the Touch of the Finger or Hand, by a Pulse not only feverish, but at the same time unequal and inordinate; a thick, red, turbid Urine, and crude without any Sediment; from a hot and sanguine Constitution, Age and Complexion.

*Diagnostic
Signs.*

This Distemper is more dangerous and mortal, as the Pulse is weaker, quicker, more unequal in Strength, more irregular as to Time, and more intermitting in its Strokes; as *Breathing* is more difficult, frequent, short, with a great Motion of the *Nostrils*, the more painful about the *Vitals*, and the more inordinate in its Time; as *Weariness* and *Weakness* are greater, the Tossing of the Body more frequent; as the Urine is higher colour'd, thicker, muddier, with the least Sediment; or as the same is thinner, more watry, more sparing, and difficultly retained; as the Patient *trembles* and shakes more, chiefly in his Hands and Lips, shy of being felt, plays with his Fingers and Hands, and as it were catches at Flies, or some Things he fancies to see upon the Bed-clothes, and about him; and as his *Eyes* appear more sorrowful and moist with involuntary *Tears*. Moreover, when the Patient labours much in his Sleep, and wakes worse after it; when either *livid* or *purple*

*Prognostick
Signs.*

Spots appear upon the Body, the Sides of the Belly stiff and blown up, then Death is at hand.

Continual putrid Fevers commonly require Bleeding in the Beginning, according to the Strength and Constitution of the Patient; but *Malignant* and *Intermitting Fevers* seldom admit of it: And in the Progress of all *Fevers*, when they draw near the Height, Bleeding is prejudicial, according to the unanimous Opinion of the Antients: For *Cælius Aurelianus*, *Celsus*, and the rest, allowed Bleeding only in the first three Days of a *Fever*, and not after; but there is no general Rule without an Exception.

As for the Cure of the Symptoms, or rather the Mitigation of them, which are more than ordinary pressing, they shall be accounted for in another Place, where I shall treat of the *Symptoms* of *Fevers* in general: But here I must observe, that, in a *putrid Fever* the Patient ought to dilute plentifully with subacid Liquors, and take such Medicines as resist Putrefaction, such as the Juice of Lemons and Salt of Wormwood made up into Draughts, or Mixtures, &c.

A continent or remitting Fever, called by the Greeks, *Synechos*, is in fact a *continual Fever* in regard to its Duration, tho' not in Degree: For it continues many Days together without Intermission; but then it has its periodical Returns of Exasperation and Remission, either every Day, or every

every other Day, but no thorough Intermif-
 fion; nor has it any cold Shiverings, after the
 manner of Agues or Intermittents. About the
 End of every Paroxysm, when the Violence
 of the *Fever* begins to remit, Sweats general-
 ly ensue, and the Urine, which during the
 Height of the Fit was intensely high-colour'd,
 in these Intervals of Remission usually depo-
 sits a laudable Sediment, which is the true
 Characteristick of a continent or simple re-
 mitting *Fever*.

There is likewise a *spurious* Kind of remitting *Fever*, which *Of the Spurious*
 is attended with outrageous Symptoms of the
nervous Kind, imitating *Rheumatisms*, *Pleu-
 rises*, *Colicks*, and other *inflammatory* or *spas-
 modick* Distempers: It also often affects the
glandulous Parts, producing from thence ma-
 nifold Excretions, causing *Vomitings*, *Cholera
 Morbus*, *Diarrhæa*, *Bloody-flux*, &c. which
 greatly obscure the fundamental Signs of this
 Fever, rendering the Paroxysms or Fits un-
 certain as to their *Access* and *Duration*: For
 by how much more the Evacuations and
 Pains, now mention'd, are augmented, by so
 much the *febrile* Heat is diminish'd and the
 Pulse weaken'd, and *vice versa*.

A *simple remitting Fever*, as such, *Prognostick.*
 and as long as it remains such, is very
 seldom, if ever, mortal; for before it be-
 comes fatal it changes its Type and Kind, and
 degenerates into a continual *malignant Fever*.
 But the *spurious Kind*, tho' it is not in its

own Nature mortal, yet on the Account of the violent Symptoms accompanying it, it pretty frequently proves so. The more regular the Fits are in point of Time, and the longer the Remissions are, the less dangerous they are, and *vice versa*.

The Evacuations which Nature makes in these *Fevers* seldom procure any Benefit, they being for the most part *symptomatical*. But the *critical* and *salutary* Evacuations are either by *Sweats* or *Spitting*; the first is the quickest, tho' the latter is equally certain, yet slow and troublesome. During the Increase of the Distemper, it is a bad Sign if the Urine gradually changes thin and pale, and the Pulse becomes quicker, weak, and staggering, &c. On the contrary, a strong and constant Pulse, Urine much tinged with Redness, and full of Settlement, particularly when there is a laudable Sediment, and the Distemper is come to the *State* or Height, they are good Signs.

The Cure. A simple remitting *Fever* gives way to the *Bark*, as certainly as an intermitting one: For the feverish Ferment in both is almost the same. The Efficacy of the same Medicine in curing a *spurious remitting Fever*, is almost as certain as in a simple one, provided it be rightly administer'd, Regard being had to the more violent Symptoms; but it has not so quick an Effect, because the Distemper is greater and stronger, and therefore requires a greater Quantity of the

the Medicine: So that the *radical* Cure of these Fevers consists in the regular giving and Repetition of the *Peruvian Bark*, with due Regard to a proper Diet in all such Diseases.

It will be necessary, in order to establish a rational Method of Cure of *con-*
tinual Fevers, to have Regard to *A Division in-*
the Division of them into *burning* *to burning and*
and *slow Fevers*; because the Method of *slow Fevers.*
treating each of these is vastly different.

Of a Burning Fever.

In a *Burning Fever* the Person is affected with a most ardent Heat, a *The chief*
Dryness of the whole Skin, of the *Symptoms.*
Nostrils, Ears, Mouth, and Tongue: Respiration is thick, difficult, and quick; the Tongue dry, yellow, black, rough, and burnt up; Thirst unquenchable, sometimes going off suddenly without any other good Sign; an Aversion from all Sorts of Aliment; a Nauseating, Vomiting, Anguish, Uneasiness, a great Weariness, a little Cough, a hollow Voice, a *Delirium*, *Phrensy*, obstinate Wakefulness, Dozing, Convulsions; and on the odd Days a renewing and increase of the Fever.

A *Burning Fever* very often kills on the third or fourth Day; it seldom gets over the seventh, if it be a perfect *Progn-*
sticks.
Causus: It often goes off with an *Hæmor-*
rhage, which if but small and sparing on the third or fourth Day, the Fever commonly proves mortal: This may be foretold from

the Patient's complaining of a Pain in the Neck, Heaviness of the Temples, Dimness of the Sight, a Working and Labouring of the Heart and Lungs without any Sense of Pain, involuntary Tears, without any other fatal Signs, Redness of the Face, and Itching of the Nostrils; but if it happens on a *critical Day*, it is most advantageous. A Solution of this Fever also on a *critical Day*, may be expected by Vomiting, Looseness, Sweating, much Urine, spitting thick Phlegm; but growing worse on the second or fourth Day is a very bad Sign, on the sixth not so bad: Black Urine, thin and small in Quantity, is mortal; spitting of Blood and bloody Urine, are mortal; a Difficulty of swallowing is a bad Sign; nothing worse than Coldness of the extreme Parts; the Face red and sweaty, is bad; a Swelling behind the Ears and not ripening, is mortal; the Belly too loose, fatal; a Trembling turning to a *Delirium*, ends in Death. This Fever often changes to an Inflammation of the Lungs, with a *Delirium* attending it.

Regimen. The Regimen in such a *Fever* is, keeping the Air of the Room pure and cool, untainted with Fire, or Smoke, or the Breaths of many People; and they ought to have no more Bed-cloaths than barely defends them from Cold; their Curtains ought to be kept open, so as to renew the Air; and their Posture in lying as erect as they can well bear.

Their

Their Drink should be cool, mild, sub-acid, tepid; given in moderate Quantities, and often, as Water with Juice of Lemon or Tamarinds. Their Aliment out to be light, of mealy Vegetables, as Water-gruel, Preparations of Barley, with some Juice of Lemon; Rice boil'd in Whey and strain'd; roasted Apples in the Progress of the Disease; a little toasted Bread sometimes, with Rhenish Wine and Water; Jelly of Currants; Broaths and Jellies made of Animal Substances, and qualified with Juice of Lemon or some other Acid, may be sometimes allowed.

Bleeding is requisite in the Beginning of the Distemper, if there be *The Cure.* the Signs of a *Pletthora*, or of a particular Inflammation, or that the Heat is intolerable, the Sweat too great, a Revulsion be necessary, the Symptoms very urgent, and hardly to be master'd by any other Means; in these Cases Bleeding is of an absolute Necessity. Sometimes also gentle and cooling Clysters are to be given, as often as the Heat of the Distemper or Costiveness shall require them. Diluents will likewise be proper, and Nitrous Medicines, and such as very gently loosen the Belly.

Here it will not be improper to take particular Notice of what *Walschmidius* says, viz. A malignant Fever often in the Beginning appears in the Shape of a *Causus* or burning Fever; so that a Physician ought to be cautious lest he should fall into a Mistake about it; therefore
let

let him be diligent to inform himself, whether the Patient complains of an Anxiety or Uneasiness at his Heart, a sudden Loss of Strength, and other grievous Symptoms : Let him also examine the *Urine*, &c. for the Cure of these *Fevers* is very different.

A *Calenture* is a *Fever* peculiar to Mariners, of a high inflammatory Nature. Those that are seiz'd with this Distemper are affected with a peculiar Sort of *Delirium* ; for they frequently say they will walk into the green Fields, which they always seem to have in View, thinking they are just going into them, and, unless they are kept by Force, they jump into the Sea ; and that is an inseparable *Sign* of this Distemper. Young lusty Men, of a sanguine Complexion, are most subject to it. The Cure chiefly consists in plentiful bleeding and diluting.

Of Slow Fevers.

Slow Fevers, tho' they are not so *acute* as the *Burning* or *Putrid Fevers*, yet they are however *continual*, as they constantly afflict the Patient labouring under them ; but they pass through their several Stages more slowly, for which reason they are of a longer Continuance, and the Symptoms not so violent.

In the Class of *Slow Fevers* we may justly reckon *Catarrhal Fevers*, which in the Beginning and Increase are attended with a *Catarrh*, a Running at the Nose, a Cough, Hoarseness, &c. These

These Fevers are for the most part gentle and slow in the Day-time, and commonly somewhat worse in the Evening: They are also attended with great Weariness of the Limbs, and the Symptoms continue, with an Increase of the Running at the Nose and Cough, till the Distemper rises to its highest Pitch, when the Matter of the *Catarrh* is ripen'd, and the *Mucus* becoming thicker, is discharged, and the Fever goes off. The Seat of this Disease is in the *Conglobate Glands* †, more particularly occasioned by some Obstructions in the *Pituitous Glands*.

A Decoction of Sassafras, with Liquorish-root and Raisins, is very proper in *Catarrhal Fevers*, on account of the Acrimony of the Humours; likewise the Juice of Turnips, with a little Sugar; Volatiles and gentle Sudorificks; a Solution of *Gum Arabick*, and whatever besides is proper in Coughs and Hoarsenesses, will be likewise useful in this Case.

Besides the fore-mentioned, there are likewise *Lymphatick* or *Pituitous Fevers*, occasioned by the Fault of the *Pituita* *The Cure.*

† A *Conglobate Gland* is a little smooth Body or Kernel, wrapp'd up in a fine Skin, by which it is separated from all the other Parts, only admitting an Artery and Nerve to pass in, and giving Way to a Vein and excretory Canal to come out. Of this Sort are the Glands in the Brain, as the *Pituitous Gland*, the *Pinealis Gland*, the Glands of the *Mesentery*, *Groin*, *Testes*, and *Labia*: All the rest of the Glands in the Body are called *conglomerated Glands*, being composed of many *conglobate Glands*, tied together and wrapp'd up in one common Membrane.

Pituita of the *Conglomerate Glands*, which discharge their Juice into some certain Cavity, of which the *Parotid Glands* and the *Pancreas* are remarkable, discharging the Liquors separated into the Mouth and Intestines, and consequently into the Mass of Blood ; which Humours, when vitiated, become viscid, salt, and sharp, produce these Fevers, which are likewise sometimes not improperly call'd *Scorbutick Fevers*. *Continual Acute Fevers*, and sometimes *Intermittents*, degenerate into these *Slow Fevers*, and sometimes into *Hæticks* ; and the Original of these Fevers is most commonly in the Stomach, proceeding from Indigestion and Crudities.

The Cure. Therefore a gentle Vomit, as well in the Beginning as in the Increase of these *Slow Fevers*, ought to pave the Way for the Cure ; and afterwards the Viscidity and Acrimony to be corrected ; and the Symptoms are to be mitigated, and the Stomach to be strengthen'd, &c. for which Purpose *vitriolated Tartar*, *Testaceous Powder*, *Diaphoreticks*, and *Volatile Salts*, &c. are proper.

Of Intermitting Fevers.

The Definition. An Intermitting Fever is a præternatural Heat, kindled in the Blood by an unusual Expansion of the Spirits, returning at certain Periods. In this kind of Fever a Chilness, Shivering, Heat, and Sweats successively follow one another. The Fit is attended with an universal Sickness, Nauseousness,

ousness, and Vomiting; Pain of the Head, Loins, &c. The Paroxysm or Fit is very *acute*, but the Distemper in itself generally more or less *chronical*.

A simple Intermitting Fever is easily known, for it discovers itself of its own Accord; and how great a Variety soever there may be of them, let them be either *Quotidians*, *Tertians*, *Quartans*, &c. the morbidick Ferment of all is the same, which certainly yields to the Force of the *Peruvian Bark*, if duly and skillfully administer'd.

The common Species of Intermitting Fevers are *simple Quotidians*, *Tertians*, and *Quartans*; *double Quotidians*, *Tertians*, and *Quartans*; half *Tertians*, half *Quartans*, &c. There are likewise Intermitting Fevers which return every fifth, sixth, or seventh Day.

Intermitting Fevers in this Country are sometimes very obstinate, often returning in spite of all Remedies; and by long Continuance they degenerate into *Hepatical Fevers*, and many *chronical* Distempers, as *Jaundice*, *Dropsy*, *Schirrus's*, and *Scurvies*; therefore in this Disease a right Method, both of Medicines and Diet, is very necessary.

We should begin the Cure with a Vomit, or Purge, according to the Strength, Age, and Condition of the Patient, and afterwards administer the *Bark* often between the Fits, in good large Doses; but if the Patient's Strength and present Case will not allow of a Vomit or Purge, then the *Bark* should be given,

given, without any previous Preparation at all; and there is a different Regimen to be used during the Continuance and Absence of the Paroxysm, and in the Paroxysm itself, during the *Rigor* or cold Fit, the Heat and the Sweat.

During the *Rigor* nothing is more proper than a Draught of warm Water, with a little Rhenish Wine, or Juice of Lemon and Sugar, which dilutes and relaxes at the same Time, and will make the Symptoms wholly abate, and terminate the cold Fit sooner, and throw the Patient into a Sweat, than the warmest Cordial. In this Case likewise strong Frictions of the Extremities relieve very much: Proper Care must be taken to shorten the Period as much as possible, and by warm Diluents a little acidulated, to bring on the Sweat soon, but not to push it beyond its due Measure; because an Intermitting Fever of itself relaxes and weakens the Body extremely.

Between the Fits too great Abstinence is hurtful, as much as too great Repletion. As Intermitting Fevers are often of long Continuance, extreme Abstinence is impracticable, and would reduce the Patient to a Condition not to be able to sustain the Shock of the next Attack.

Between the Fits, such Substances as temper, correct and subdue the *bilious Alkali*, as acid Substances, nitrous Salts, small thin Wines, Chicken-Broth with Juice of Lemon, Wine with Bitters infus'd, are proper.

Ex-

Exercise, to as great a Degree as the Patient can bear, is extremely beneficial between the Fits. Bleeding in Intermitting Fevers seldom does any Good, but oftentimes a great deal of Harm; yet the Patient's Condition is to be considered in this Case.

But there are *spurious* Intermitting Fevers, as was observ'd of Remittents: Their Symptoms are sometimes very urgent and violent, and their fundamental Signs are disguised under the Appearance of some other Distemper, as Vomiting, *Diarrhæa*, and some great Pain, &c. The true and genuine Sign of the real primary Distemper being chiefly known by the Exasperation and Remission of those violent Symptoms, and by the Urine of a Brick-dust Colour; but these *spurious* or *illegitimate* Intermittents creating a great Variety of direful Symptoms, such as enormous Vomitings, Griping, Looseness, *Cholera Morbus*, Colicks, Pains in the Side like pleuritick Pains, Apoplexies, Pains on one Side of the Head, Spasms or Cramps, nephritick Pains, &c.

Notwithstanding the great Variety there may be of these Disorders, in their manifold Shapes and Forms, yet they all depend upon one and the same Ferment, and are certainly cured with that one sovereign Antidote the *Peruvian Bark*, if prudently administer'd, as well as any other Intermitting Fever.

The Cure.

No

Prognostick. No one has been known to die of an Intermitting Fever, except it be in the cold Fit, that Excess of Coldness arising from a Viscidity in the Blood, and an absolute Oppression of the Spirits.

The proximate Cause of Intermitting Fevers. After an accurate Examination into the whole History of Intermitting Fevers, the proximate Cause is assign'd to be the Viscosity of the arterial Liquid, there happening at the same Time some Cause or other for a quicker and stronger Contraction of the Heart, and a Dissolution of the stagnating Viscidities. *Boerhaave.*

Having thus far treated of *Benign Fevers*, I shall now proceed to give the Reader a succinct and clear Account

Of Malignant Fevers.

Diagnostick. The first Sign of a *Malignant* Fever, is a remarkable Loss of Strength on a sudden, without any manifest Cause, with a weak Pulse: The external Heat is not so violent as in some other Fevers; the internal Heat is rather greater. It is attended from the very Beginning with obstinate Watchings, and anxious Uneasiness: The Sick complains and shews the *Region* of the Stomach, or the Heart; the Urine is not unlike that of a Person in Health; the Countenance looks hideous sometimes, and much changed from the natural State, sometimes of a livid Colour.

The Reason why the feverish Heat and Ebulli-

Ebullition in these Fevers, is not so great as in other Fevers, is entirely owing to the Malignity which has seiz'd the Blood; and is rather a Sign of some great Disorder of the Spirits, which are greatly affected, and as it were *sphacelated* or deaden'd, than of any Disturbance in the Humours; or it may be sometimes the said Disorders may be propagated into the Humours, especially the Blood, from the malignant Taints; from which arises great Confusion, and an inordinate intestine Motion, which indeed produce an internal Heat, but is not carried so sensibly to the external Parts. By this means Nature being, as it were, oppress'd, is not able to exert those Symptoms more regularly, which are agreeable to, and might attend the Disease.

There is a great Variety of *Malignant* Fevers, on account of the Diversity of their Symptoms: In some there are very remarkable cutaneous Efflorescencies; in some more abundantly, in others less; and in some no such Appearances at all; others, in fine, are attended with other kind of Symptoms.

Some assert, from microscopical Observations, that in all *malignant* Fevers and gangrenous Ulcers, there is so great a Putrefaction of the Blood, that it gives Occasion for the Generation of a Multitude of little Worms, from whence they believe the great Variety of Symptoms so vexatious do arise; but these Worms cannot be bred without a preceding

Putrefaction; and the Blood in *Malignant Fevers* is preternaturally fluid, insomuch that when it is let out of the Body it will not coagulate as usually; but this is the Product of the Distemper, and not the Cause.

The very naming a *Malignant* Fever strikes a Terror into Mankind; because all *Malignant Fevers* are very dangerous, and as to the Event very uncertain; which made *Galen* assert that *Malignant Fevers* will not admit of a *Prognostick*. Deafness in the Beginning portends the greatest Danger, but in the Height of the Distemper it is a favourable Symptom; but bleeding at the Nose and a Looseness through the whole Course of the Distemper, are very bad Signs: And it is almost always reckon'd a very bad Symptom when they employ their Hands as if they were catching Flies, or picking up Straws or Bits of Threads. If on or about the eleventh Day Buboes arise in the Groin, it betokens well, and terminates the Fever.

*The Cure,
according
to Etmüller
and others.*

Malignant Fevers by no Means admit of Bleeding; for the more malignant they are, the more Mischief it would do, and the farther from the Beginning the worse. Vomits in the very Beginning of the Distemper are above all Things exceedingly proper; but then they should be given before any cutaneous Eruptions appear, otherwise the Opportunity is lost; and afterwards the Cure is to be endeavoured by Medicines, and
Sub-

Substances that procure Sweating, Nature herself teaching us so much; for frequently Sweating carries off the Cause and Fewel of the Distemper.

The greater the Malignity is, the more Sudorificks, or sweating Medicines, are to be employ'd, regard being always had to the Nature of the Distemper, and its Diversity, as also the Strength of the Patient. Sudorificks are to be given at least three or four Times in twenty-four Hours; Analepticks and moderate Acids are to be used in the intermediate Times, amongst which dulcify'd Spirit of *Nitre* is very good; also Tincture of *Saffron* extracted with sweet Spirit of *Nitre*; likewise the Juice of *Citrons* and *Quinces*, &c. *Camphire* is a noble Alexipharmick, but every Body cannot bear the Use of it, especially some Women, and studious Men, whose animal Spirits are easily moved and dissipated. Blisters are of singular Use in the State or Height of the Distemper. The volatile Salts of *Hartshorn*, and of *Vipers*, are Sudorificks, and resist Malignity; and here the *Mistura Simplex* of *Paracelsus* takes Place, as well as in all pestilential Fevers, being a very noble Remedy. Its Dose is from one Dram to two, to be given once in six or eight Hours, in a proper Vehicle.

Notwithstanding Bleeding in this Disease has been, and is accounted dangerous by a great many Practitioners, it only proves so when it is triflingly performed; for if a large

Quantity of Blood be taken away in the very Beginning, it secures the Party from Danger. But Bleeding had better been quite omitted, than not to be performed to a large Quantity, even almost to Fainting; and to prevent Fainting the Patient ought to be let Blood in his Bed. It is to be minded, that where there is a *Plethora*, or the Patient is of a strong Constitution, more Blood may be taken away than in a weakly or a phlegmatick Constitution. After a sufficient Evacuation by Bleeding, plentiful Sweating must be procured by proper Medicines and Drinks, such as *Venice Treacle*, *Mithridate*, *Diascordium*, *London Treacle*, *Camphire*, *Lapis Contrayerva*, *Pulvis ad Guttetam*, Sir *Walter Raleigh's* Confection, Treacle-water, Plague-water, Castor, Saffron, Cochineal, &c. Of these and the like many excellent Sweats may be fram'd into either Bolus's, Draughts, or Mixtures, interlac'd with nitrous Medicines and Acids, according to the Exigency of the Case. When Spots appear, neither Bleeding, Vomiting, nor even Glysters are to be administered, but Sudorificks and Blisters.

If the Blood tends to a Dissolution, sweating Medicines and spirituous Cordials are very improper; but Emulsions, acidulated Drinks, and the like, with *Bezoarticks*, *Nitre*, and gentle astringing Remedies, in order to reduce the Humours to their natural Texture and Firmness. Their common Drink ought

to be acidulated with Juice of Lemon, Spirit of Sulphur, Elixir of Vitriol, &c.

Of Spotted Fevers.

A Spotted Fever is a very malignant one, in which, besides the Symptoms common to other malignant Fevers, there is a very remarkable Weariness of the whole Body, an universal throbbing and pricking Pain: The Spots appear sometimes the fourth Day, but oftener about the seventh, especially on the Breast and Shoulder-blades, then on the Belly, Legs, Arms, and Neck, seldom in the Face. Not only Spots, but likewise large Marks, black and blue, sometimes appear; and in the Declension of the Distemper sometimes a Spitting comes on, which carries it off.

The Symptoms of a Spotted Fever.

The Spots in the milder Sorts of this Fever are florid and very red, like Flea-bites: Afterwards they grow pale, yellow, and so disappear: The more red they are, the better: On the contrary, those that are of a livid or pale red, or appear blackish, are the worst. If they strike in again, it foretells a great deal of Danger.

Prognosticks.

These Distempers are contagious, and sometimes epidemical or spreading: They are very dangerous; for of those that are seiz'd with it, more die than recover.

They are contagious.

Spotted Fevers being a Species of the Malignant, the same Indications of Cure are here required as were mentioned

The Cure.

above for the Cure of malignant Fevers in general. If the Spots strike in too soon, Vesicatories are to be employ'd ; upon which, tho' we are not to expect the Spots to appear again, yet in some Measure the Blistering answers the End of their not appearing, and sometimes very happily prevents the direful Symptoms in the nervous System. No Evacuation of the Bowels must be attempted, such as Vomiting or Purging, or even by Glysters, as long as there is any Appearance of the Spots.



CHAP II.

Of the Cure of the most urgent Symptoms attending Fevers.

Rigor in Fevers.

THE Coldness and Shiverings which happen in the Beginning of acute Fevers, are owing to a Diminution of the Contraction of the Heart, the Circulation then being less quick, and the Blood actually stagnating in the extreme Parts, and pressing upon the Heart, creates great Anxieties, and may produce *polypose* Concretions about the Heart, and in other Parts of the Body ; therefore a *Rigor* or Coldness encreases an Inflammation. Those who die of *Quartan Fevers*,

Fevers, die in the cold Fit; and in truth, there is no Mischief but what may proceed from a Rigor of long Duration; for if it remains long, sudden Death sometimes ensues; and therefore the greater and longer such Coldness is, the more dangerous is the Fever.

In such Rigor or Coldness, all warm Cordials and stimulating Substances are improper; for the first acting with Force upon the right Ventricle of the Heart, may drive the Blood with too much Force thro' the Lungs; and stimulating Substances, by contracting the Vessels, often increase Symptoms, which are best reliev'd by drinking warm Water with a little Rhenish-Wine, wherein a little Nitre is dissolved; likewise strong Frictions of the extreme Parts are very useful in this Case. See farther in the Cure of *intermitting Fevers*.

The Degree of *feverish Heat* may be known by the Thermoscope, the *Feverish Heat.* Sensation of the Patient, the Intensity of the red Colour of the Urine, the Siziness of the Blood, the Dissipation of the fluid Parts, which renders it thicker; the Hardness, Strength, and Frequency of the Pulse, which makes the Friction or Rubbing the stronger, to which the Heat is proportional, the bad Disposition of the Humours, the Temperament of the Body.

This Heat is moderated by Bleeding, by muscular Rest, by moderate Ligatures, which compress the Veins *The Cure.* only.

only, and often remov'd from Joint to Joint, by a mechanical Reason retard the Circulation; of such Sort is dry Cupping, Bathing the lower Parts, watery Liquors for Drink, not cold but warm; subacid, as Jelly of Currants dissolv'd in tepid watery Liquors, Decoctions of mealy Substances acidulated, Substances that are Anodyne, Substances which dissolve Concretions, such as Sugar, Honey, and the simple *Oxymel*; plentiful diluting, and restoring as much Water to the Blood, as is dissipated by the Heat; all demulcent and relaxing Substances, cooling the Air in the Room, opening the Curtains, and removing too heavy Bed-cloaths. All stimulating and styptick Substances are to be avoided; because they increase the Force of the solid Parts. Lenient Glysters and Emulsions are also useful to mitigate such an excessive Heat.

Caution. But great Care is to be taken lest by cooling too much, the Spirits shou'd receive a sudden Damp, and by that means be depriv'd of their Elasticity, whereby the *burning Fever* might unwarily be changed into a *malignant* one, which has been many a time the Case.

Thirst. In *Thirst* attending *Fevers*, the Liquors should not be drank quite cold; for cold Liquors by constringing the Glands of the Palate and Throat, do not quench Thirst so well as Liquors moderately warm; In this Case acidulated small Liquors should be plentifully drank. All Salts in-
crease

crease Thirst, except *Nitre*, and dulcify'd Spirit of *Nitre* mix'd with Water, or the Patient's common Drink, is useful in this Case; so are Barley-Water and Emulsions, except in great Weakness and Flatulencies of the Stomach; in such Case Water mix'd with a small Quantity of Rhenish-Wine is best of all.

In these *Anxieties* which attend *Fevers*, when the cold Fit is over, in such a Case a warmer Regimen may be allow'd; because *Anxieties in Fevers* often happen by *Spasms*, or Convulsions from Wind, therefore Spices are useful. And in those *Anxieties*, saponaceous Substances which dissolve the Blood are proper, as ripe Fruit, and especially Honey, Sugar, &c.

Sickness and *Vomiting* may be owing to an original Surfeit, and is one of the most troublesome Symptoms attending *Fevers*; because it renders the Patient incapable of taking any thing. It is often prevented by giving a gentle Vomit, or cur'd by promoting the Vomiting for a while by warm Water, or thin Chicken-Broth; for which Purpose likewise *Carduus* Tea drank in large Draughts may do very well; but if it does not of itself succeed well, half a Dram of Salt of *Vitriol*, or a Spoonful of *Oxymel* of *Squills*, may be given with the *Poffet*.

During

During the Symptom, *acid* Liquors, and even such as are austere and astringent, are to be used; because such strengthen the relaxed Fibres of the Stomach; for which Purpose the following Julap is very effectual.

Take of Salt of Wormwood 4 Scruples; of fresh Juice of Lemon, 2 Ounces; mix, and when Ebullition is over, add to it of Barley Cinnamon Water, 3 oz. of Mint-Water and Nephritick Water, each 1 Ounce; Spirit of Saffron, half an Ounce; Syrup of Quinces, 1 Ounce; mix for a Julap, of which let the Patient take 2 or 3 Spoonfuls every 3 Hours, or oftner.

Diluting, and sometimes relaxing the Belly, and carrying the *bilious Salts* downwards, often cures this Symptom. And Attention is to be given to the Appetites of Patients in this and many other Cases, who sometimes covet odd things which have relieved them, as Salt, Vinegar, &c.

Vomiting from a bilious Cause is cured by acidulated small Liquors; and vomiting from some putrid Cause, by Salts of all Sorts; and in such a Case, Water-Gruel with Cream of Tartar, Rhenish Wine with Water, Jelly of Currants, Marmalade of Quinces, Sorrel boil'd in Broths well skimmed from Fat, are exceeding beneficial.

But

But if the Vomiting proceeds from a phlegmatick Cause, Spices and Bitters will relieve; for the Counterpoison must be adapted to the Cause: As for Example, in Poison from sublimate *Corrosive* and *Arsenick*. In the first, *alkaline* Substances are properest; in the second, *oily* Substances are fittest, in both *Diluents* are proper. It will not be difficult to judge of the Cause by what the Patient throws up from the Stomach.

Whether a Vomit may be safely or properly given, must be judg'd by the Circumstances; for if there be any Symptoms of an Inflammation of the Stomach or Lungs, a Vomit is extremely dangerous.

A *Diarrhæa* or Looseness sometimes happens in *Fevers*, which proves often a dangerous and fatal Symptom; and this Evacuation is not the genuine Motion of Nature for its Relief, but arises rather from the Impetuosity and Violence of the Distemper, or the stimulating *Acrimony* of the Humours, which in reality is a symptomatical *Diarrhæa*, and ought to be stopt; for it weakens, excoriates, and inflames the Bowels, occasioning bloody Fluxes, thickening the circulating Juices, and exhausting the Strength of the Patient very much; however, a critical *Diarrhæa* is not to be stopt, for fear of incurring the same Dangers.

A Caution in giving Vomits.

A Looseness in Fevers.

Attention should be given to the Cause: If it proceeds from *Acidity*, it is to be cured by *Anti-acids*; but as in Fevers the Cause is more commonly *alkaline* and *bilious*, *acid* or four things relieve best; and it happens sometimes, that oily Substances by blunting the *Acrimony* will do a great deal of good in *Diarrhæas*; for oily Substances of themselves do not irritate or provoke Loosenesses, they only lubricate or make the Bowels slippery. Vomiting, by evacuating the irritating Cause, often cures *Diarrhæas*.

Anodyne Substances are proper, and generally speaking, solid and dry Food rather than liquid.

The white *Decoction* of burnt *Hartshorn* is very proper for common Drink, and absorbent testaceous *Powders* mix'd with *Diaphoreticks*, are likewise very useful in the Case; and lastly, we may have Recourse to *Venice Treacle*, *Diascordium*, &c. But it is observable in general, that Laxness of the Body in the beginning of Fevers is better than over Costiveness, but in the Progress of the Distemper it is worse.

Strangury
in Fevers. A *Dysuria* or *Strangury* in Fevers is very troublesome. The common Emulsions are very proper to mitigate the Ebullition in *burning* Fevers; and commonly they very much assuage this vexatious Symptom; as likewise Oil of sweet Almonds, with Syrup of Marsh-mallows, or a Solution of *Sperma Ceti*: also a Solution

of 1 Ounce of Gum-Arabick in a Quart of Barley-Water for common Drink, is an excellent Remedy, especially when this Symptom is occasion'd by Blistering.

Profuse Sweats which happen in *Fevers*, either in the Beginning of the Disease, or at any other Time before the *Crisis*, and before the Signs of Concoction appear, are *symptomatical*, and oftentimes *Colliquative*: They proceed from a Laxity of the Vessels, and too vehement a Circulation of the Blood, and ought therefore to be restrain'd by Art; for they are very troublesome to the Patient, and they exasperate the Distemper, in depriving the Blood of its most fluid Parts, thicken and often cause Obstructions; so that it is a very bad Practice to push Sweating too much in *Fevers*, except in such as are *pestilential*.

In *profuse Sweats*, Care should be taken by diluting, to restore the Liquid which the Blood loses, and to use the Methods advised already in too great Heat, by taking away some of the Coverings of the Bed, and admitting of cool Air, and using a Diet moderately astringent, and mild *Acids*, &c. *Tinctura Antiphthifica*, on Account of the Sugar of Lead in the Composition, is esteem'd an efficacious Remedy for suppressing such Sweats; and likewise Sage is very good in the Case of profuse Sweats.

A

Pain of the Head. A violent Pain in the Head, Back, or in the Limbs, especially in the beginning of *Fevers*, requires Bleeding; and if that does not relieve, it will be proper to give a gentle Vomit if the Stomach be foul, otherwise a laxative *Glyster* may suffice.

Watchfulness is a Symptom in *Fevers*, which is sometimes called a *Coma Vigil*, and often precedes too great Sleepiness, and is perhaps the most ill-boding Symptom of a *Fever*; therefore the Cause is to be narrowly enquir'd into; if it proceeds from too great Heat and Dryness, cooling and moistening things are to be administred; if Pain be the Cause, we must endeavour to assuage it by proper Remedies, avoiding *Opiates*, without an absolute Necessity, especially about the time of the *Crisis*, when the Physician may perceive great Restlessness and Inquietude in the Patient; for it should be always remember'd as a Maxim, that a Space of time before the *Crisis* happens, is the most troublesome, *Nox ante Crisin est molestissima*.

Other Expedients in this Case are, extreme Care to keep the Patient from Noise, and whatever makes any strong Impression upon his Senses, and some of those Helps used in a *Delirium*, for this is an Approach towards it; a moist softening Diet, all Preparations of Barley, Emulsions of *Poppy* Seeds and Almonds, Aliment of *Lactefescent* or milky Plants, especially Lettuces, Decoctions of
Scorzonera

Scorzonera Roots, *Almond* Cream, and what is called Winter-Flummery, used as Aliment; Tea made of Cowslip Flowers, relaxing gently the Belly.

Coma, or Sleepiness in Fevers, is directly contrary to the fore-mentioned Symptom Wakefulness; the Patient has a continual Propensity to doze or sleep, sometimes with a real Sleep, and often without it. A *Coma* will proceed either from a Pressure upon the Original of the Nerves in the Brain, by too great Repletion; or from a Penury or Waste of Spirits by too great Inanition.

Old People are subject to *Comas* by the Glewiness of the Fluids circulating in the Brain, which being resolved by the Fever, obstruct the small Canals of the Brain: But in young People it commonly proceeds from Fulness, and is best cur'd by Bleeding and relaxing the Belly. The Sign of such a Fulness is, a red Countenance and inflamed Eyes; but if it proceeds from a glutinous Oil, it ought to be resolved by Water, nitrous Salts, Soaps, Subacid Liquors, and Blisters, not forgetting the Use of sharp Glysters.

In a feverish *Delirium* there is a small *Delirium*. Inflammation of the *Brain*; therefore any thing which increases the Circulation in the Lower Parts, and diminishes the Pressure on the Brain, is beneficial; as bathing the Feet in warm Water; nothing relieves the Head more than the *Piles*, therefore Suppositories of Honey, Aloes, and Rock-salt ought to be made

made use of; relaxing by emollient and watery Substances, both in Drink and Glysters, especially Barley, Cream, and Barley-gruel, are to be frequently used: Likewise *Bleeding* in the Foot, and *Blisters* will be of great Service in this Case.

Of Convulsions in Fevers.

Convul-
sions. Nothing is of more Importance than rightly to know the Cause and the Seat of this Distemper, which is commonly very obscure. In Infants *Convulsions* commonly proceed from Acidity in the Stomach and Intestines, which are cured by Absorbents, such as testaceous Powders of all sorts, and gentle Purges and Glysters; but in such indeed *Convulsions* attending Fevers are not altogether so dangerous.

Convulsions arising from Acrimony in the Stomach, or from any thing vellicating a Nerve in its Extremity, and not in its Original where it rises from the *Brain*, are not very dangerous; but *Convulsions*, which proceed from too great Evacuations, as great *Hæmorrhages* attending Fevers, are very dangerous, and frequently mortal.

Convulsions proceeding from an Inflammation of the Membranes of the *Brain* are commonly fatal: The Symptoms attending such are, a great Heat and Thirst, a hard Pulse, and a *Delirium*; so that the Remedies, and even those from Diet, are to be used according to the particular Seat of the Distemper;
for

for if it be from the Stomach, such Aliments as are contrary to the particular Acrimony, Acid, Alkaline, or Oily, impacted there, as in the Case of Vomiting, already described.

But if they arise from something obstructed in the *Brain*, such Convulsions are generally cur'd by Diluting, Relaxing, Revulsions, and softening both the Fluids and Solids, and using such Substances especially as open the Belly; and in general the Regimen prescribed in a *Delirium* or *Coma*: For it would be a Folly to rely here on the Medicines, which, by their pompous Titles of *Anti-spasmodick* and *Anti-hystericks* promise a specifick Cure; besides, all Volatiles, spicy and cordial Substances, are here destructive.

Of Weakness in Fevers.

A feverish *Weakness* proceeds from *Weakness*. too great Fulness in the Beginning, and too great Penury or Inanition in the latter End of the Distemper; for whatever stops or retards the Circulation of the Fluids in the smallest Vessels, especially those in the *Brain*, produces this Symptom, which either of the Causes now mentioned will certainly do: And those two Causes require a different Method of Cure; for in the first, emptying and diluting is requisite; in the latter, a more plentiful Nourishment, the Use of Wine diluted with Water, and Spices in small Quantities, Jellies, Broths qualified with some gentle Acid, unless there be Signs of Acidity; but in that

Case the Diet should be contrary to that Symptom ; in which Case Viper Broth, and all other Broths are both anti-acid and nourishing.

In *Weakness* from too great a Loss of Blood, Wine and Food which is easily digested and assimilated or converted into Blood, is proper ; for a small Quantity of Blood oftentimes brings the Patient into a Dropsy. Frictions of the Limbs relieve Weaknesses, as they promote a Flux of Juices and Spirits in the Joints and Limbs, by which Means they will bring Nourishment to those Parts.

Fat People are most subject to the Symptom of *Weakness* in Fevers ; because the Fat, being melted by the Heat of the Fever, Part of it obstructs the small Canals or Vessels, and consequently produces this Symptom ; which is evident from the great Loss of Fat such Persons sustain in Fevers, by the Laxity of the Fibres, and the Emptiness of the smaller Vessels ; and therefore such should be treated with particular Care, for after due Evacuations they ought to dilute plentifully both by Drink and Glysters, avoiding all fat and oily Things, and using Sugar, Honey, and ripe Fruits.

Of inflammatory Eruptions in Fevers.

In all these of any Kind whatever, as *Small-Pox*, *Meazles*, *Purples*, *Scarlet-fever*, *Erysipelas*, or *St. Anthony's Fire*, the Intention of Diet ought to be, to avoid strong Sudorificks, or sweating Things, which push out too great
a Quan-

a Quantity of the Matter upon the Skin ; to use cooling and temperate Diluters, which will keep the Matter moveable, so that it may be secreted from the Blood ; to keep warm during the Eruption ; and that the Diet be cool ; for which Reason the moderate Use of Acids, as Juice of Limons, &c. are necessary ; and above all things Bleeding must not be omitted.

A due Attention to the few Rules above-mentioned, in the several Symptoms, will prove successful in the Cure of most Fevers.

Of the Small-pox.

Notwithstanding I have taken notice just now of Eruptive Fevers in general, yet as this is one of the most dangerous and universal that infests Mankind, I shall treat of it in this Place in particular. Therefore, the greatest and most important Steps for the Recovery of the Patient must be made at the Time of the Invasion, or first State of this Distemper ; wherefore it is very necessary to know the first Symptoms of it ; for many have suffer'd by mistaking it for another Disorder.

In general, young People who have not had the Disease, ought to be very careful in avoiding Irregularities in their Diet ; because the *Small-pox* which seizes such Persons often proves fatal. This Disease is likewise more dangerous as the Fluids are more heated and dissipated, and the Solids more

strict and compacted, and consequently it is more so, as People are advanced in Years.

First Stage. The first Symptoms are a Chilness and Rigor, succeeded by a Fever and constant Heat, a certain Splendor or Shining in the Eyes, with a little Moisture, which is very observable in Children; a great Pain in the Head, with Drowsiness, Dullness, and Sleepiness; a Pain in the Back in some, but Pains in the Limbs in all; Anxiety, Inquietude notwithstanding their Drowsiness; loathing Sickness at the Stomach, Vomiting, and Convulsions in Infants shortly before the Eruption; and the Blood taken away the first Time, florid; but on the second, third, and fourth Time it appears fizy, like that of pleuritick People.

Therefore it is manifest that in this State the Distemper ought to be treated as any other inflammatory Disease, by such Methods as if it were possible to hinder any Suppuration at all; and to resolve and digest as much of the feverish Matter as possibly we can; for the longer the Eruption is a coming, and the fewer when it comes, the Disease is less dangerous; therefore all the Methods practised in the Beginning of inflammatory Distempers are here necessary and proper, with a particular Care of cleansing the alimentary Passage by Vomiting and Glysters, the Impurities of which will otherwise be carried into the Blood.

The learned *Boerhaave* says, that as there is not yet found any particular Antidote to the
poisonous

poisonous Quality of this Disease; but that if any such could be found, as he is of Opinion it may, it must be in *Antimony and Mercury brought to a great Degree of Penetrability, without being too corrosive by a Saline Acrimony, but well united*; for the Effects of Mercury on all Ulcerations are notorious.

In the first Stage then of the *Small-pox*, the whole Habit of the Body ought to be relax'd both inwardly and outwardly, and a free Perspiration through the Pores of the Skin, without violent Sweats be promoted; the Viscidity or Glewiness of the Fluids taken off by Diluters: All these Things may be affected by Glysters, Fomentations and Gargles, and a plentiful Use of Drinks often repeated, made of thin Water-gruel and other mealy Decoctions, and such like cooling Liquors, with nitrous and acid Salts, or some other acid Substances mix'd with them, such as the Juice of Oranges, Limons, Tamarinds, and other sub-acid Fruits, &c. no Flesh to be allow'd, unless some small Chicken-broth at Times; the Air ought not to be spoiled by Heat, or the Bed-Clothes so thick and heavy as to produce great Sweats.

For more People are lost in the *Small-pox*, by being thrown into large and violent Sweats in the Beginning of the Eruption, than by any other Errors committed at all other Times: The Reason is, because great Sweats drain the small Blood-Vessels of the necessary Fluid, by which Circulation is hinder'd and the Blood

coagulates, by which Means the Inflammation is hurried on into a *Gangrene*, without being able to furnish the necessary Work of *Impostumation* in the Glands of the Skin, or of being dissipated by other proper Means.

When this Disease has run off its first *Second Stage.* Stage, which is call'd by the learned *Boerhaave*, that of *Contagion*, it enters into the second, in the following Manner: The Skin of the Head and Face first, then of the Hands and Arms, and lastly of the Body and lower Parts, are mark'd with little red Points like Flea-bites; thereupon the Symptoms abate, and the red Pustles increase every Hour in Largeness and Number; they continually rise higher and higher, inflame more, and the Skin is stretch'd; they begin to pain and to burn; the Circulation is interrupted, and *Perspiration* hinder'd; hence a great Return of the Humours towards the inward Parts; a Fever arises, with Anxieties, Difficulty of Breathing, a Pain in the Jaws, sometimes a Quinsy, a Looseness, Bloody-flux, Bloody-urine, Spitting of Blood. The Parts of the Skin free from Pustles are red and inflamed, painful and hot; all which, or most of which, when they have lasted *four, five, or six* Days, are now intirely suppurated, and converted into as many small Impostumes. And this is likewise call'd by the above-mentioned Author, the Stage of the Inflammation until the Suppuration: It lasts (according to the Difference of the epidemical Season, and that

that of the Patient, the Greatness and Violence of each particular Case, and the Regimen hot or cold made use of) most times four or five Days; so that the *Suppuration* is compleated about the eighth Day, reckoning from the first Beginning; and the Blood, if let out of a Vein, is extremely inflamed.

From what has been said, the Diagnosticks and Prognosticks of the second State of the *Small-pox* may be learned, and the *Rationale* of it, and all its Symptoms, which will be plainer still by observing the following Rules.

1. The gentler the State of Contagion, that is, the first Stage, the easier likewise is the inflammatory State, which is the second Stage of the Distemper.

2. The slower the Pustles break out, the longer therefore the State of Contagion, so the easier and milder is the whole Course of the Disease through all its Stages.

3. The fewer, more distant, bigger, more remote from the Face, whiter and afterwards the yellower the Pustles are, and the later they appear, so much the better Event they promise.

4. The more in Quantity, more mix'd and intangled, the less in Bulk those that stand single, the more they appear upon the Face, tawny or black, and the quicker they grow, so much the worse.

5. The more the Matter of the Pimples is like to kind and perfect *Pus*, the better.

6. The more the Matter in the Pimples resembles a *gangrenous Ichor*, the worse.

7. The more the Space between the Pimples appears red, is hot, stretch'd, and swell'd about the Time of their impostumating, so much the greater Hopes, because it is a Sign of the Circulation's being preserved there.

8. But the more that same Space looks paler, or grows tawny or black, so much the worse; for there follows a mortal *Quinsy* or *Peripneumony*, unless a thin Salivation, or a great Swelling of the Hands or Feet doth ensue: The Reason is, because the Circulation of the Fluids is cut off in those Parts, and drove back and increased in the internal nobler Parts.

9. If in the Space between the Pimples there appear purple Spots, it is a sign that a mortal *Gangrene* is at hand or present.

The Indication in this second State of the Disease, is different according to the different Time that the Disease has lasted, and is like to last: for in the Beginning of the external Inflammation shewing itself, it appears reasonable to endeavour to prevent its proceeding to an Impostumation, as has been observed already; or, if that be neglected, Care ought to be taken that the Suppuration be as little as possible, and promoted slowly and far from the Head; which may be effected, *first*, by keeping the Patient to the thinnest Diet, which at the same time resists Putrefaction. *Secondly*, by giving him diluting, soft and sub-acid

acid Drink. *Thirdly*, Medicines that prevent the making of much *Pus* or Matter, such as are opening and diluting, in great Quantities and often given ; likewise Blisters applied to the Hollows of the Feet and Legs. *Fourthly*, A cool Regimen, and chiefly by the Admission of pure and fresh Air, (as was observed in the first State) and at the same Time covering the Limbs and lower Parts of the Body warm. *Fifthly*, If the Distemper proceeds too violently on the fifth Night, a gentle Opiate may be safely given to an Advantage, and repeated every Night to the End of the Disease, if the Lungs are not too much oppress'd, and Respiration very difficult.

After the running off of the *second Stage* follows the *third* *Third Stage.* *State*, being that of Impostumation, during which it increases and arrives at its Height : In this the Pustles, already purulent, grow larger every Day ; then they ripen, turn white, yellow, and break on the third or fourth Day of this State. Then the whole Skin, and its subjacent Fat, abound with a moveable *Pus* or Matter ; it is dried externally, and inflamed in every Part free from Matter or *Pus* : Hence, from the Impediment of Perspiration and Circulation, from the Irritation of the membranous and nervous System, from the absorbing of the *Pus* into the Veins, there comes on a Fever of the worst Kind, with the worst Symptoms ; and if this
puru-

purulent Matter mix'd with the Blood is moved long, it putrefies : Hence, according to its falling upon different Parts of the Body, it produces cruel and scarce superable Effects, such as *Deliriums*, *Phrensies*, *Quinsies*, *Peripneumonies*, *Pleurisies*, Vomitings, Bloody-fluxes, Inflammations of the Liver, Impostumations of the same ; Boils, Tumors, Abscesses, and Stiffness of the Joints ; a Wasting, *Consumption*, and a great many more Evils.

In this third State great Care ought to be taken to promote the Discharge of the *Pus* to the external Part, driving it from the Internals ; which may be effected by relaxing the Skin with lukewarm softening Fomentations, and often ; constantly washing and gargling the Mouth and Throat ; drinking much of warm, cordial, detergent, and opening Decoctions, which are contrary to Putrefaction ; injecting daily a gentle, diluting, emollient, and laxative Glyster, and to be kept long ; or sometimes a gentle Purge with *Rhubarb* and *Manna* ; dieting upon thin Broths duely salted and acidulated ; allowing now and then a moderate Glass of good generous Wine ; giving also a sufficient Dose of Syrup of *White Poppies*, or some other Opiate, against any violent or troublesome Symptoms that may arise.

If the *Small-pox* proves to be of the worst Kind, and that there is rather a gangrenous Ichor than laudable *Pus*, that almost the whole Skin is beset with it ; hence it may
easily

easily appear, why this Disease is often so unavoidably fatal, notwithstanding all the possible Care taken; and it will be yet much plainer to any one acquainted with Dissections, that as the external Skin is full, so the Eyes, all the Membranes of the Nostrils, all the Covers of the Mouth, the Wind-pipe, the *Bronchia*, the Stomach, the Gullet, Intestines, Liver, Spleen, and Lungs, are full of the like Pustles; and hence he will understand what has been said, and see what is requisite for the Cure. Thus far the Sentiments of *Boerhaave* concerning the *Small-pox*.

The Greatness and Danger of this Disease is estimated by the Quantity of Pimples on the Face and Head; therefore the Matter ought to be sollicitated to the lower Parts by all possible Methods, especially the Legs, by Fomentations, Bathing, Blistering, and, thro' the whole Course of the Disease, keeping the Feet and Legs warm; the Breast and Head not any more cover'd than to keep them from the Injury of the cold Air.

During the filling and ripening of the Pustles the Diet may be allow'd a little more plentiful, but yet not hot or inflammatory, with the due Use of *anodyne* Things, or such as allay Pains and Restlessness. In this State every Thing that abates Acrimony is proper; and, where the Circumstances of the Patient require it, a Spoonful or two of good White Wine, twice or thrice a Day, may be likewise useful.

The

The Diet in this State should also be adapted to the particular Symptoms of the Disease, as cleansing, attenuating; and expectorating; and to promote spitting by Diureticks.

When the Temperament, Age, high Pulse, and especially Watchfulness and *Delirium* require Bleeding in any other Case, why not in this State? which is known to have been used with great Success; for a great many Vessels in this State are almost unpassable by the Fluids; and those who die of this Distemper have inward Inflammations, especially in the Lungs, all which seem to justify that Bleeding is necessary in the Case.

But the gangrenous Disposition which appears in the malignant Sort, is a Reason against it; for hardly any Thing will avail in extreme malignant Cases. In such malignant Kinds, all that is left, is, at least to endeavour to evacuate the peccant Matter by other Ways, as Blistering and Stools, procured by Lenitives not irritating, which would only hurry the Humours and increase the Fever.

For farther Particulars concerning this dreadful Distemper, see the celebrated Sydenham's Account of the *Distinct, Confluent, and Anomalous Small-pox*, which nothing can excel.

The *Meazles* and *Scarlet Fever*, (tho' not near so dangerous) require much the same Regimen, and the same Method of Cure, as the *Small-pox*, the *Scarlet Fever* not differing from the *Meazles*, except it be in the Manner
of

of the Efflorescence only, insomuch that it may not improperly be called the *Confluent Meazles*; for the Efflorescence in the *Meazles* makes its Appearance in different Figures and Shapes, from whence the Skin is diversify'd with several Colours; whereas in the *Scarlet Fever* the Skin is spread all over with one continued Inflammation and Redness.



C H A P. III.

Of Inflammatory Diseases with a Fever.

NOW those inflammatory Distempers are to be considered, which being attended with an acute Fever, do besides induce a singular Inflammation of this or that Organ of the Body, the depraved Function of which gives a Name to each particular Disease of that Kind; such are the *Phrensy*, *Quinsy*, *Pleurisy*, *Peripneumony*, the Inflammation of the *Breast*, of the *Diaphragm*, *Stomach*, *Liver*, *Spleen*, *Mesentery* †, *Guts*, *Kidneys*, *Bladder*; of the *Joints*, as in *Rheumatisms*; and of the *Surface* of the Body, as in the *Meazles*, *Scarlet Fever*, and *Small-pox*.

Of

† A membranous Part in the lower Belly, to which the Guts are connected.

Of a Phrensy, or Inflammation of the Brain.

True or symptomatick. A *Phrensy* is either essential or symptomatick: An essential or true *Phrensy* is when there is a primary Inflammation of the Brain, or rather of the *Meninges* †, with a Delirium and an acute Fever. The Symptomatick *Phrensy*, or *Phrenitis*, is occasioned by a Translation of the febrile Matter or Inflammation, &c. from other Parts upon the Brain.

A true *Phrensy* kills the third, fourth, or seventh Day, or else it produces Madness, a Lethargy, or *Coma*; and a *Phrensy* coming upon a Peripneumony, or the *Iliack Passion*, is mortal; upon the Small-pox, is very dangerous.

This Disease, of all others, requires the most powerful Remedies without any Delay, which are able to remove the Inflammation of the Arteries of the Brain, and are chiefly to be taken from the general Cure of Inflammations in Fevers, describ'd in the foregoing Chapter, observing at the same time the following Rules.

Copious Bleeding, by opening the temporal *Arteries*, or more *Veins* at once, in the Foot, Throat, and Forehead, with large Orifices, are the most effectual Remedies. Great Quantities of cooling Decoctions ought to be given

† Are Membranes which cover and embrace the *Brain*, and they are called the *Dura Mater*, and the *Pia Mater*, or *Meninges*.

given often and warm, with large Portions of *Nitre*. Then, cooling Purges, and at the Time of their working, to give Draughts of diluting nitrous Liquors. Sometimes Glysters of the like Kind, with *lenitive Electuary*, or Honey, or any such Openers may be given.

Solliciting the Blood to other Parts of the Body ; therefore tepid Bathings of the lower Parts, and emptying the *Piles* with *Leaches*, relaxing Fomentations apply'd to the Veins, which carry the Blood from the Head, relieve in this Disease. We should likewise apply Blisters and Cupping-glasses to the inferior Parts ; Blistering the Back, and even the Head sometimes, in phlegmatick Constitutions especially, has been found useful. The Body ought to be kept moderately cool, and set upright if possible, for the warm Air of the Bed exagitates the Blood.

But if the *Phrensy* has been occasioned by a pre-existent inflammatory Distemper in some other Part, it ought to be carefully minded, whether the Nature of that Illness will bear the Applications above-mention'd ; which if not, then it ought to be cured according to the Method peculiar to that original Distemper, always adding the Remedies that divert from the Head, and that are externally apply'd.

The Diet ought to be slender, of mealy Substances, as Water-Gruel acidulated, or subacid ripe Fruits, with their Jellies, the Drink small, diluting and cooling, Barley-Water,

Water, and the Decoction of Tamarinds are all necessary and useful. For farther Satisfaction herein, see the Articles of *Delirium* and *Watchfulness* in the preceding Chapter.

Of a Quinsy.

A Quinsy without a Tumour almost always mortal.

There are two *Species* of it; the first is without any sensible Tumour either externally or internally; but the other *Species* of a *Quinsy* is attended with a Tumour. The first Sort is commonly the Consequence of some very long continued Disease, chiefly after very large and often repeated Evacuations. It is accompanied with a Paleness, Dryness, and Thinness of the Jaws; because for the most part the Nerves and Muscles of those Parts being relaxed, are most times paralytick, and it is a Sign almost always that Death is just at hand. It is seldom cur'd, and then only with Remedies which fill the empty Vessels with good vital Nourishment, and things that warm and strengthen the Body in general.

A Quinsy with a Tumour of various Sorts.

The other *Species* of the *Quinsy*, viz. with a Tumour in the Throat, occasioning a Difficulty of Breathing and Swallowing, may be of various Sorts; sometimes it proceeds from a Serosity obstructing the Glands, which may be watery, œdematous, or schirrous, according

cording to the different Degrees of the Viscidity of the Humours, sometime inflammatory, which Inflammation will sometimes terminate in a Suppuration, or Gangrene.

The Regimen and Cure in those Quinsys, which proceed merely from watery, œdematous, and thin catarrhus Humours obstructing the Glands, must be *first*, to use such warm Liquors as relax gently, soften and moisten these Glands; *Secondly*, such Medicines as carry off the redundant Serum, by Stools, Sweat, and Urine; or by stimulating, and opening the Emunctories of these Glands to seern the stagnated Humours, which may be obtained by the Application of Cataplasms, Gargles, Injections with Syringes, and by lessening the Quantity of the *Lympha* with Masticatories, Blisters, and smart Purges that will promote watery Stools.

In a mere watery Tumour, the Diet may be more warm than in inflammatory Kinds; and therefore the moderate Use of Wine often relieves the Patient.

But a Difficulty of Breathing and Swallowing, proceeding from Schirrosities of the Glands, is not to be cured any other Way than by extirpating the Schirrus, which alone will be a safe Remedy: or the Surgeon must with Prudence endeavour to fix a Caustick in the middle of the Tumour, to eat the same out; which is feasible enough when the Seat is near the Jaws.

In the inflammatory Species of a *Quinsy* we ought, by all means possible, endeavour to procure a Resolution : *First*, By large and repeated Bleedings. *Secondly*, The Belly must be loosened stoutly with either Purges, or purging Glysters frequently injected. *Thirdly*, By a very thin and slender Diet, such as *Whey* with Tamarinds boiled in it; Decoctions and Emulsions of farinaceous Vegetables moderately acidulated, and such as abound with a cooling nitrous Salt. *Fourthly*, By Medicines of the nitrous and acid Kind. *Fifthly*, By soft, warm Vapours constantly receiv'd upon the Part, bathing and fomenting the Feet, and Derivations by Blisters.

When Swallowing is totally abolish'd, the Patient may be nourish'd by nourishing Glysters, which is known to have been done for a whole Week, after which the Tumour suppurated.

If the Inflammation ends in a *Gangrene*, the Case proves generally mortal, except it be only in the Tonsils, *Uvula*, and Palate, and reach no farther, which Parts may be separated, and the Patient recover.

Of a Pleurisy.

Diagnostick. A *Pleurisy* is an Inflammation of the *Pleura*, being a double Membrane which covers all the Cavity of the Breast; tho' that is hardly distinguishable from

from an Inflammation of any other Part of the Breast, which are all from the same Cause, a stagnant Blood; for there is no Part of the internal Integuments of the Chest, which is not capable of being seized therewith, whether it be the *Pleura* or the *Mediastinum*; and therefore the pricking Pain may be felt in any Part of the Breast: But most commonly it attacks the Sides, and this having a Fever join'd with it, is a true *Pleurisy*; but if such a Pain affects the superior intercostal Muscles, it is called a spurious *Pleurisy*.

In a true *Pleurisy*, Bleeding largely, and often repeated in the Beginning ought to be perform'd, and that by a large Orifice; and the Rule is, to repeat Bleeding so often until there appears no longer any Siziness on the Top of the Blood: and at the same time, Fomentations and Liniments may be used externally. For internal Use, Diluters, Resolvents, Coolers and Lenients that will assuage Pain, are proper; and all such Things should be taken warm, and in great Quantities.

Sometimes the Part inflamed tends to a Suppuration, which is known by the obstinate Violence of the Pain and Fever, &c. and continuing longer than the 4th Day. That an *Abscess* is form'd may be known by a frequent shivering, a Remission of Pain, Shortness of Breath, and being able only to lie on one Side, which is the Side that is affected.

When the *Abscess* is broken, the purulent Matter falls into the Cavity of the Chest, and increases by the Discharge from the Ulcer, which produces an *Empyema*, of which I shall give an Account hereafter. But sometimes the Part affected becomes schirrous, with an Adhesion of the Lungs and *Pleura*; hence an *Asthma* and dry Cough, an incurable Distemper, unless perhaps there may be some Relief had from much Exercise and Riding.

Sometimes a *Pleurisy* turns to a *Gangrene*, which causes sudden Death; that a *Gangrene* is begun, may be known from the Delirium, the livid Colour of the Chest, a sort of bilious Spitting, and from a Cessation of Pain.

The Prognosticks. *Hippocrates* observes, that if in the Beginning of a *Pleurisy*, within the space of three Days, the Spitting is Bloody, it shews that the Distemper will be but short; if the Spitting of Blood comes on later, the Distemper will likely run into a greater Length. He adds, that if *Pleuritick* Persons do not expectorate, an *Abscess* will be form'd in fourteen Days; and such may be freed from that, if they can fully discharge the Matter by spitting in forty Days from the Time of the Rupture of the *Abscess*, otherwise they fall into a Consumption.

In this Distemper the Spitting is to be regarded more than the Urine; and a *Pleurisy* that seems slight in the Beginning, and proceeding
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so till the fifth Day, but growing worse the sixth, is commonly mortal. When the Suppuration is made, or Matter form'd in a *Pleurisy*, the Side must be open'd to let out the Matter.

Of a *Peripneumony*.

A true *Peripneumony* is an Inflammation of the bronchial and pulmonary Vessels, or of the whole Body of the Lungs, or of one *Lobe* only. If the whole Lungs are affected the Case is desperate, and deem'd incurable; because the Circulation must be stopt, and no Blood can flow back into the Heart; the others sometimes admit of a Cure. It is to be treated after the same Manner, and with the same Remedies as a *Pleurisy*, and most commonly it has the same Event.

*A true Peripneumony
or Inflammation of
the Lungs.*

If the Inflammation be not dissolved in fourteen Days Time, an *Abscess* will be formed; the Signs of which are Shiverings, an Abatement of the Pain, and a low Pulse, Difficulty of Breathing, Thirst, and a slight Fever still remaining in the Evenings, &c. Upon this sometimes a sudden Suffocation happens from an Eruption of the purulent Matter into the Wind-pipe; sometimes it is evacuated by spitting it up in great Quantities; or, if the Rupture so happens, it falls into the Cavity of the Chest, from whence proceeds an *Empyema*, a *Phthisis*, &c.

Prognostick.

Lastly, the purulent Matter is absorbed by the pulmonary Veins, and is mix'd with the Blood; and by means of the Circulation, is deposited in some one of the *Viscera*, as the Liver, the Spleen, the Brain, &c. Hence it comes to pass that peripneumonick *Abscesses* happen about the *Ears*, *Legs*, or *Hypochondria*, where if they suddenly disappear, and the Peripneumony returns, the Case is mortal.

*The Type of a
spurious Peri-
pneumony.*

A *spurious Peripneumony* commonly proceeds from a thick pituitous Matter, generated in the Mass of Blood, which gradually settling itself on the Lungs, forms the Distemper. Old People, and such as are of pituitous, cold, catarrhous Constitutions, and such as are troubled with Defluxions of Rheums, are more subject to this Distemper than others.

It creeps on unawares upon People with a fallacious Lenity at first; they are slightly indisposed, complaining of a sort of Weariness and Debility; they seem to be dispirited; they grow short-breath'd, and feel an Oppression of the Breast; but as the Disorder is hardly considerable enough to raise any great preternatural Heat or Fever, they are not apprehensive of any Danger: After a while however they are seiz'd with Shiverings and a small Fever, from whence the Difficulty of Breathing and great Weakness increase, and Death approaches, which surprizes the By-standers,

standers, the Urine and Pulse having not such a sudden Change.

This Distemper is cured by the following Method; first, let the Patient be blooded out of a large Vein; secondly, a Glyster ought be given every Day, till it appears that the Lungs are eased; thirdly, his Diet ought to be of thin Flesh Broths, Jellies with some Juice of Lemon or Oranges; his Drink also small, of Water and Honey; fourthly, to use diluting, cleansing, and gently opening Apozems, often and in large Quantities; bathing the Legs and Feet, and applying many Blisters.

The Cure.

Of an Empyema.

An *Empyema* is a Collection of purulent Matter in the Cavity of the *Thorax*, most commonly occasion'd by the Rupture of an Abscess, produced by a Pleurisy or Peripneumony: It is known, if for twenty Days after the Beginning of the Inflammation there has been no Expectoration; from a dry Cough, a Weight on the *Diaphragm**, being able to lie only on one Side; from a fluctuating Noise of the *Pus* or Matter upon moving the Body, a slow Fever, Redness in the Cheeks, Hollowness of the Eyes, Heat in the Tops of the Fingers, Crookedness of the Nails, and a Tumor of the Belly.

Empyema what.

B b 4 As

* It is a tranverse Membrane, which separates the *Thorax* or Chest from the *Abdomen* or lower Belly.

The Cure. As to what relates to the Cure of an *Empyema*, when it is once known

that there is a Rupture of an Abscess of the Lungs, *Pleura*, *Diaphragm*, or the *Mediastinum* †, or *Pericardium* ‡, endeavours must be used to discharge the Matter by Expectoration, by the urinary Passages, or by Stool, if Nature offers to do it those Ways; for if purulent Matter appears in the Urine, let diuretick Medicines be given; if purulent Stools happen, laxative Purges; if Spitting offers, expectorating Medicines: Some make Issues with Causticks betwixt the Ribs. For internal Use, Balsamicks, Vulneraries, Decoctions of the Woods, Jellies of Hartshorn, and Ground-Ivy, are very much commended.

But if all Remedies fail, the Cure must be attempted by an Aperture of the *Thorax*, with a proper Instrument on the Side affected, between the 4th and 5th, or 5th and 6th Ribs, counting from the lowermost, drawing off the Matter gently and gradually: From the Nature of the *Pus*, when taken out, and other Circumstances of the Patient, one may deduce a Prognostick of what may likely be the Event.

If the *Empyema* be of a long standing, and the Strength of the Patient exhausted, the Hair of the Head falling off, and there be a colliquative Looseness, the Habit of the Body

† Is a Membrane which divides the Lungs and other *Viscera* of the Breast into two Parts.

‡ A Membrane which surrounds the whole Substance of the Heart.

Body tabid, &c. the Operation of the *Paracentesis* will serve only to hasten Death.

Of a Paraphrenitis, or an Inflammation of the Diaphragm.

A *Paraphrenitis* is a Disease much like a *Pleurisy*, wherein the *Diaphragm*, or at least part of it, is really inflamed; and this is what happens more frequently than is commonly believed, mistaking it for another Distemper. It is known by a continual Fever, an exquisite Pain very much increased upon Inspiration, by which it is distinguish'd from a *Pleurisy*, in which the greatest Pain is in Expiration; besides, the Breath is fetch'd deep, quick, and suffocating, and seems only to be performed by the Motion of the Breast: It is likewise attended with a Delirium, Fury, and an involuntary Laughter, and Convulsions; and altho' the Whole of the Distemper is known, yet it is generally mortal.

This Distemper terminates as *Pleurisies* and *Peripneumonies*, but a great deal more fatal: If it suppurates the *Pus*, it is evacuated into the lower Belly, where it produces Putrefaction, and a most miserable and painful Death. The Regimen, if any can be successful, ought to be the same as in *Pleurisies*, and the Cure likewise.

Of an Inflammation of the Stomach.

As other Parts of the Body, so may likewise the Stomach be seized *The Signs.*
with

with a true Inflammation: The Symptoms and Effects are a burning, fix'd, and pungent Pain in the Stomach, attended with an acute continual Fever, a great Exacerbation of this Pain the Moment after swallowing any thing, succeeded with Vomiting, a painful Hickup and great Anxiety, unquenchable Thirst, want of Sleep, and a continual Tossing of the Body; these are succeeded with Deliriums, and most times Convulsions, ending in Death.

The Causes. The Causes of these Symptoms are those common to all Inflammations in general, a natural Weakness, and perhaps Erosion of the Coats of the Stomach, by acrid Substances taken as Aliment and Medicines. Care must be taken rightly to distinguish between an Inflammation of the Stomach, and that of the Liver: In the former the burning Pain and Heat seem to lie deeper; when the Liver is inflamed the Inflammation is more limited, and the Symptoms are milder.

If this Disease is not speedily cured, it soon proves fatal; for People commonly die of it the third or fourth Day; and sometimes indeed, tho' seldom, it tends to a Suppuration, and the Abscess breaks either into the Cavity of the Stomach or lower Belly; and even then they hardly ever escape.

Of all Diseases this requires most a total Abstinence from any Thing that has Acrimony in it; even the nitrous cooling Salts, which
are

are beneficial in other Inflammations, irritate too much in this; likewise Vomits, all Cordials of volatile and spicy Substances; spirituous Liquors are no better than Poison, and Milk generally curdles. Aliments must be given frequently, and by Spoonfuls at a time, for any Distension of the Stomach increases the Inflammation.

A thin Gruel of Barley, Oatmeal, Whey with very little Sugar, or Honey, or Chicken-broth, are proper Aliments; Whey, emollient Decoctions of Barley-water, and Emulsions, are proper Drinks; and it has been found by Experience, that *Chalybeat* Waters have been agreeable to the Stomach in this inflammatory State. If there happens an *Impostume*, Honey, and even Honey of Roses, taken inwardly, is a good Cleanser, and a Decoction of *Comfrey* Roots is healing: Speedy and effectual Bleeding, Fomentations, and Glysters have the same good Effect in this as in other inflammatory Distempers. Likewise the same Regimen and Remedies ought to be used in a *Schirrus* or *Cancer* of the Stomach; tho' nothing will prove quite effectual. The same Method is to be pursued in the Inflammation of the *Spleen*, *Pancreas*, and *Caul*.

Of the Inflammation of the Liver.

As other Bowels and Parts of the Body are capable of Inflammations, so is the Liver likewise; but as the *Hepatical* or *Liver Artery*, and the *Vena Portæ*, carry the Blood
into

into the Liver, the first being very small, and the Motion of the Blood being slow in the last, are the Reasons that Inflammations in the Liver are not so frequent as in some other Parts of the Body; but when they happen they are extremely dangerous, unless they take up but a small Part of the Liver; and such happen more frequently than is thought of.

*Diagnostick
Signs.*

The best Cautions, both in Diet and Cure, may be taken from the Causes and Symptoms of this Distemper, which, besides the general Causes of Inflammations, are extreme Fatness; for Fat dissolved by Heat and Inflammation obstructs the Vessels of the Liver very suddenly; and Cattle fatten'd by good Pasturage, after violent Motion or Running, sometimes die suddenly, in such the Liver is found to be inflamed and corrupted. An *atrabiliarian acid* Temper of the Blood and Gall, an acrimonious or purulent Matter, stagnating in some other Organ of the Body, is more easily deposited upon the Liver than any other Part, especially if it is attended with the Use of hot and spicy Aliments, spirituous Liquors, great Heat and a *Fever*; Erosions of the Vessels by the Acrimony or Sharpness of the Gall, or Obstructions by Viscidity; likewise any Callosity, *Schirrus*, or Stone generated in the Liver; Thirst long endured, being suddenly chill'd by cold Air, cold Water, or drinking cold Liquors after great Heat; Vomits

mits given injudiciously, when the Liver is already unsound, which, if they do not remove the Obstruction, exagitate the Liver too much; inveterate hypochondriacal Diseases; are all Causes which may produce Inflammations of the Liver.

In such a Case therefore, the Liver being swell'd, compresses the Stomach, *Diaphragm*, and all the neighbouring *Viscera* of the lower Belly, stops the Circulation of the Juices, the Generation and Excretion of the Gall, and all Digestion; produces numberless bad Symptoms, as the *Jaundice*, with all the Distempers depending upon it; for the Liver receives the reflux Blood almost from all the Parts of the Abdomen or lower Belly, and is the chief Instrument of all the Digestions which are there made. A slow Fever, which is more or less acute; an Inflammation and pungent Pain on the Region of the Liver and *Diaphragm*; a Tension of the *Hypochondres*, especially on the Right Side; Yellowness of the Skin and Eyes, and a saffron-coloured Urine, are Signs of an inflammatory Disposition of the Liver.

This Distemper terminates as other Inflammations, being cured *Prognostick* either by Resolution, Concoction, and Excretion of the morbid Matter; or it ends in an *Abscess*, *Schirrus*, or *Gangrene*: When it suppurates, the purulent Matter is discharged sometimes by Stool, sometimes by Urine, sometimes by Expectoration, and sometimes it

it is discharged by manual Operation. For when a Tumor rises and grows to the *Peritoneum*, and forms there an outward *Impostume* of the Liver, easily discernable, then it is opened with a burning Iron, or with Causticks; afterwards the Wound is widen'd with gentle corrosive and suppurating Applications, untill there is a Penetration made into the very Bag or *Vomica*, which is in the Body of the Liver; then it is treated as an Ulcer, and cleansing internal Medicines are duely administer'd at the same Time.

*Indication
of Cure.*

But during the first State of the Disease, that is, before there are any Signs or Suspicion of Impostumation, the *Regimen* should be cooling, resolving Liquors taken inwardly, as Whey with Sorrel boil'd in it; outward Fomentations and frequent Injection of emollient and diuretick Glysters, Bathing, and Frictions, relax and render the Matter fluid and moveable; Honey, with a little Rhenish Wine or Vinegar, inwardly taken, is likewise proper; also the Juices and Jellies of some ripe Garden-Fruits are useful, and those of some Plants of a milky Juice, as Dandelion, Endive, and Lettuce, are Resolvents. Bleeding in the Beginning, especially in the Foot, will not be improper. Violent Purges hurt, but gently relaxing the Belly relieves. Diluters, with nitrous Salts, are beneficial, and Tamarinds boil'd in Water or Whey: Bloody Stools, not in a great Degree, or when streak'd with Blood,

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Blood, ought not to be stop'd, because they help to resolve the Disease; and oftentimes Bleeding at the Nose produces the same good Effect.

The Fever attending is often carried off by Urine, therefore diuretick Substances, that are not highly pungent and stimulating, are useful in this Case; and Sweating by high Cordials ought not to be attempted; but encouraging and promoting it with warm diluting Liquors is proper.

The Case is deplorable when the Inflammation of the *Liver* terminates in an Abscess, unless it points and appears outwardly, so that it may be open'd; for if the Matter be evacuated into the Lower Belly, it produces woeful Symptoms, as Putrefaction, or an incurable Bloody-flux, &c.

When the *Pus* or Matter of an Ulcer in the Liver grows thin and *ichorous*, it corrodes the Vessels, (for the Liver, of all the Bowels, is the most friable, and the easiest crumbled or dissolved) and it is frequently carried into the Mass of Blood, and rejected by vomiting, with a cadaverous Smell, attended with great Thirst; but if it is carried downwards, it produces a purulent *colliquative* Looseness: In which Case the constant Use of subacid Decoctions, and other Substances of the acid Kind, relieve the best.

If this Distemper happens to produce a *Cancer*, or *Schirrus*, as sometimes it does; yet the latter is not absolutely incurable, because

cause it is experimentally known that Grass and fresh Pasturage has cured it in Cattle, and some opening Plants have produced the same Effect sometimes in Mankind, as those of the lactescent or milky Plants already mentioned, with a great many other Vegetables too tedious to insert in this Place.

But it is to be observed, that the Diet recommended here is likewise necessary in the Jaundice, and all Distempers of the Liver; and also an Abstinence from all such Things as induce Putrefaction, especially salt Fish and Flesh, and above all strong Liquors.

Of an Inflammation of the Mesentery.

Inflammations and Tumors of the *Mesentary*, (being a Membrane in the Lower Belly to which the Guts are connected, and through which all our Nourishment is convey'd to the Blood,) are frequently the Origin and Foundation of many obscure and latent chronical Distempers, which greatly afflict People labouring under them, and perplex those who undertake their Cure as well.

Diagnosis. Persons affected with these Disorders complain of Pain about their Back and Loins, sometimes in the Belly about the Navel, with Gripings, yet these Pains are commonly periodical and chronical; and every now and then comes on a small wandering Fever, and the

the Pains come and go, having their Remissions and Exacerbations.

When an *Abscess* in the *Mesentery Abscess*. suppurates and breaks, it causes sometimes remarkable Shiverings and Shakings, which are followed by febrile Heats, and then the purulent Matter is most commonly discharged by Stool.

The Body in this Case gradually wastes, the Breathing grows more *Prognostick*. than usually difficult; and every now and then they complain of something that is very troublesome to them, which they cannot well explain: They tell you, that it lies deep in their Belly about the Navel, or below it; they are most commonly very much troubled with Wind. These Tumours oftentimes continue many Years, being turn'd *schirrous* and *strumous*.

When the Disorders of the *Mesentery* are of a long standing, they are *The Cure*, cured as other chronical Diseases, such as *chacheetick* and *hypocondriack* Affections: Yet they are to be treated with Caution, and gently without any Violence. Externally, *Emplastrum de Cicuta cum Ammoniaco, de Ranis cum Mercurio, &c.* are convenient. Internally, Medicines that open Obstructions, such as *Millepedes* and Preparations of Steel, &c. likewise Remedies against *strumous* Distempers are proper, and opening of the *hæmorrhoidal* Veins by *Leaches*; but rough Purges are hurtful, and Glysters are useful.

Of the Inflammation of the Guts.

The *Intestines* or Guts, chiefly the small ones, are very often seiz'd with the like acute Inflammation in their Membranes, as the

The Cause. Stomach, from Causes common to all Inflammations carried thither; or from the Matter of acrimonious or sharp Drink, Aliments, high Sauces, Medicines or Poisons reaching those Parts, and detain'd in the Foldings of the Valvules and sticking to them; also from a sharp, putrid and foetid, purulent, ichorous, gangrenous, bilious Matter, convey'd hither from the Gullet, Stomach, Liver, Spleen, Pancreas, and Caul, which sticks also to them and corrodes them; or lastly, from a Convulsion filling them with Wind.

Symptoms. The Symptoms are a total Stoppage of the Passage, a vehement fix'd burning Pain, irritated by Things taken inwardly; when any thing touches the Part affected, it excites Vomitings, sharp griping Pains, with Wind in other Parts of the Bowels; and the Consequences of such an Inflammation are the *Iliac Passion*, or what is vulgarly call'd the Twisting of the Guts, but in fact is either a Circumvolution or Insertion of one Part of the Gut within the other; an Impostume, Gangrene, Schirrus, Cancer; a very acute Fever, with great Weakness from the Fierceness of the Pain, and a very sudden Death.

It

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It is of the utmost Importance to know what the Causes of Colicks are ; for as they are various, so the Remedies in one Case are quite opposite and destructive in the other ; for spicy, warm, carminative Things, which are given in Colicks proceeding from a *phlegmatick* or cold Cause, are Poison in an inflammatory one ; but they may be distinguished by the Fever, high Pulse, Thirst, and high-colour'd Urine attending the Inflammation. As to the Heat, tho' it is likewise great by the Violence of the Pain, yet the Extremities grow cold ; and besides, there is a sudden Prostration of Strength, or Weakness, attending this inflammatory Colick more than any other.

This Disease requires a speedy Remedy, or none ; for otherwise it terminates in an *Iliac Passion*, and Mortification of the Bowels very soon ; therefore plentiful Bleeding, and fomenting and relaxing the Bowels with emollient warm Liquors, both taken inwardly by the Mouth, and by Glyster injected hourly, is the most sovereign Method that can be made use of ; yet it has been known, that Acids have relieved in very desperate Cases, as Juice of Lemons taken by the Mouth, and Vinegar and warm Water given in Glysters, have saved the Patient ; by Reason of the continual Vomiting, Opiates likewise to quiet the Convulsions are oftentimes necessary ; also warm Fomentations, even of warm Animals applied to the Belly, are extremely useful.

When the Inflammation happens to be in the Lower Guts, it is not so dangerous; and even when it suppurates it will admit of a Cure; for then it can be come at by proper Medicines in the Form of Glysters; and in the latter End of such a Case *Chalybeat* Waters are very beneficial.

If the Patient lives three Days, the Acuteness of the Pain abates; and if a Shivering or Chilliness affects the Body, it is a Sign of a Suppuration, and in some few Days the Matter flows either into the Cavity of the Belly, producing all the Symptoms which happen in an Impostumation of the Liver, or into the Cavity of the Guts, and causing a purulent Bloody-flux, and often a Consumption, *Sinus's* and *Fistulas*; in which Case Whey and *Chalybeat* Waters are proper Drinks.

The Aliment ought to be of such Substances as generate little or no Excrements, as Broths of Flesh-meat, with *Scorzoner*a, *Parley*, or *Fennel* boil'd in them: Goat's Whey is likewise excellent in the Case; but fat and oily Substances generally do harm.

If the Fever continue with clammy Sweats, Paleness, an *ichorous* Loosness, foetid, black, or like the Washings of Flesh, a small intermitting Pulse, and at last a Cessation of Pain totally, they are Signs of a *Gangrene*, and Death at hand.

But if none of the foremention'd Signs happen, and that the Fever abates, and the Person complains of a Weight, dull Pain, Stop-

page of the Excrements, a *Schirrus* is forming, which increases daily, and may terminate in a *Cancer*; which Purging, and indeed all Medicines irritate: The Patient in such a Case may protract a miserable Life with an exact thin Diet of Whey, Broths, and such Things as produce no *Fæces*, or by nourishing Glysters.

Inflammations of the Kidneys.

The *Kidneys* as well as other Parts of the Body are subject to Inflammations: Which may be known from a pungent, burning, inflammatory Pain in the Region of the Kidneys, a Numbness, or dull Pain in the Thigh on the Side affected; likewise Colick, Wind, Vomiting, an acute continual Fever, Urine sometimes totally suppress'd, often made in small Quantities, high colour'd; and which is worse, sometimes very watry and quite pale without any Sediment. As to the outward Sensation of Heat, the Extremity of Pain oftentimes produces a Coldness in the extreme Parts, which is very consistent with inflammatory Distempers.

*Diagnostick
Signs.*

This is produced by all the Causes of a general Inflammation directed to the Kidneys; and therefore, whatever obstructs the Blood in the Extremities of the Arteries of the Kidneys, will produce this Distemper; a Wound, Bruise, Abscess, Swelling, Lying often long on the Back, too violent

The Cause.

lent Motion, especially walking, or hard riding in hot Weather ; and whatever obstructs the Passage of the Urine into the *Pelvis, Ureter,* or Bladder, as a viscid Matter, Gravel or Stone ; likewise every thing which forces the gross Parts of the Blood into the urinary Passages, as Heat, hard Riding, Straining, too great Fullness of Blood, and especially sharp and forcing Diureticks ; and lastly, a convulsive and involuntary Contraction of the small Vessels of the Kidneys, if long continued.

Coffee-colour'd Urine is not a dangerous Sign ; for it proceeds from the Mixture of a small Portion of Blood with the Urine, and oftentimes it prognosticates a Resolution of the obstructed Matter, and the Expulsion of Gravel, or a Stone after great Pain ; but pale Urine is a Symptom which portends the Distemper to be more lasting and dangerous.

The Cure is to be perform'd by plentiful and repeated Bleeding, avoiding carefully at the same time all stimulating Diureticks, which in this State would increase the Disease : Afterwards the Expulsion of the obstructing Matter is to be promoted by emollient and soft Liquors plentifully drank, and by Glysters of the same kind frequently injected ; by Bathing and outward Fomentations, by opiate and anodyne Substances, which both ease and relax the Fibres ; and those soft Liquors should be drank plentifully notwithstanding the frequent Vomitings ; for Vomiting is an Effort of Nature in order to
pro-

promote the Expulsion of the Gravel, Stone, or any other obstructing Cause.

Therefore Whey, and in a great feverish Heat, Butter-milk; likewise Emulsions of Barley and Poppy Seeds, Honey in Whey and Water, are all very proper Liquors for this Intention; also a moist and soft Diet, Rest, and keeping out of a warm Feather-bed, and particularly avoiding lying upon the Back.

If the Pains or Convulsions be very urgent, without waiting for the Effects of other Remedies, *Opiates* with due Caution ought to be given; but when the Gravel, Stone, or any other obstructing Cause is separated from the Kidneys, soft express'd Oils, and oily Substances relax the Passages; and if the Pain proceeds only from Gravel, or a Stone, then oily Substances may be safely join'd with stimulating Substances, as with Juice of Lemon, Juniper-Water, and some diuretick Syrup, as that of Marsh-mallow, &c. In this Case the Jolting in a Coach, and such-like Motion may be used with Advantage.

If the Pain is protracted beyond seven Days, an Abatement of the Pain, its changing into a Beating or Throbbing, often-returning Shiverings, a Heaviness or Numbness of the Part, are Signs that Matter is forming, which when made will appear in the Urine; in which Case, soft and balsamick Substances are the most beneficial; for if the Matter remains long, the Case is incurable.

Prognosticks.

Sometimes it happens to terminate in a *Fistula*, with which the Person may live many Years in no great Uneasiness. All Balsamicks are good in Ulcerations of the Kidneys: Likewise Butter-milk not quite sour has been deem'd a Secret in the Cure of Ulcers of the Kidneys, and Steel-waters have proved very beneficial to some; Spruce-beer is also a good Balsamick in such a Case; and soft Malt Liquors are preferable to Wines.

Inflammations of the Kidneys terminate sometimes in a *Schirrus*, or large Stone. But a sudden-Remission of the Pain, with cold Sweats, a weak and intermitting Pulse, Hick-up, no Urine, or in very small Quantity, black and foetid, are sure Signs of a Mortification and ensuing Death.

Regimen. The Regimen of those who are subject to *nephritick* Disorders may be in some measure collected from what has been above-mention'd; and such ought to be extremely careful of the Choice of their Liquors; for sharp Wines which abound with *Tartar*, are very hurtful; soft Malt Liquors, not stale, are certainly much better to be made use of, and some of the softest diuretick Substances often mention'd already; and to avoid acrimonious Things in their Food, use moderate Exercise, and not lie too hot, soft, nor much upon the Back.

Of an Apoplexy.

This Distemper is a sudden Suspension of all the Senses, both external and internal, and a Privation of all voluntary Motion, by the Stoppage of the *Flux* or *Reflux* of the *animal Spirits* through the Nerves destin'd for those Motions, commonly attended with a strong Pulse, and difficult Breathing, with Snoaring, together with an Appearance of a deep and continual Sleep.

Definition.

The most common Causes of *Apoplexies* are a particular Conformation of the Body, as a short Neck; for there are some Persons who have fewer *Vertebrae* in their Necks than others; *polypous* Concretions of the Blood, an inflammatory Spissitude of it, a thick, glutinous, or pituitous Blood, and a dull Inactivity of the whole Mass; a *gross*, *plethorick*, fat, or phlegmatick Constitution; whatever hinders the Motion of the Blood thro' the *Arteries* of the Brain, as Tumours arising within the *Cranium*, or *Polypus's*, especially about the Heart, attended most commonly with an unequal Pulse, a Vertigo, and sometimes a momentary Loss of the Eye-sight; old Age, attended with a glutinous, cold, catarrhus, *leucophlegmatick* Constitution; for in such the Forerunners of an *Apoplexy* are, Dulness, Inactivity, Drowsiness, Sleepiness, Slowness of

The Causes.

of Speech, and giving Answers, Vertigoes, Tremblings, Oppressions in Sleeping, Night-Mares, Weakness, Wateryness, and Turgidity of the Eyes, a great Fulness of Blood, with its Velocity increased by Heat and violent Motion, a high Diet, and Spirituous Liquors, a partial and imperfect Circulation of the Blood towards the lower Parts; the Effusion and Pressure of any Serosity, or Blood upon the Ventricles of the Brain, which is the most common and immediate Cause of *Apoplexies*; violent Passions and Affections of the Mind. The immediate Fore-runners of an *Apoplexy* are most commonly a *Vertigo*, Staggering, Loss of Memory, Stupor, Sleepiness, a Noise in the Ears, and a deep and laborious Breathing. To these may be added, Extravasations of the Blood or Serum from Contusions or Concussions, occasion'd by external Violence, and an innumerable other latent Causes.

The Division of *Apoplexies* into sanguineous and pituitous is of Use, but then it is not an exact and perfect Division; because there are other Kinds, viz. *serous*, *atrabilious*, and *polypous Apoplexies*, &c.

Prognosticks. A slight Fit of an *Apoplexy* is carried off by a plentiful, warm, and equable Sweat, a great Discharge of thick Urine, a Flux of the Piles, or of the *Menses*, by a Looseness, or a great Fever coming upon it. If the *Apoplexy* be more severe, it usually terminates in a *paralytick* Disorder
of

of some Part of the Body, or of all one Side, which is called a *Hemiplegia*; or sometimes of all the Body below the Head, which is called *Paraplegia*, and is seldom curable, but always leaves behind it a great Defect of Memory, Judgment and Motion. An exquisite *Apoplexy* soon carries off the Patient; it is seldom known that they live beyond the seventh Day.

The Cure is to be varied according to the Difference of the Causes; for if occasion'd by a cold phlegmatick Cause, we ought immediately to endeavour that the Pressure of the glutinous Siziness may be diverted from the Head, by Derivation into other and opposite Parts, and universal Evacuations: for this Intention, Blisters, Causticks, Frictions, Ligatures, Antiphlegmatics, sneezing Medicines, and all sharp and *stimulating* ones are to be used, as Emeticks, strong Purges, and sharp purging Glysters.

The Cure various.

Yet in the Use of all these the Mischief is oftentimes increased, the Matter being thereby more violently moved and afterwards fix'd, and the Strength sinking under the Evacuations; therefore in endeavouring a Resolution, we ought to insist upon Evacuations and Revulsions, as much as the Case will bear; whence the Rule of *Hippocrates*, Bleeding except it relieves, kills; and *Celsus* says, that it kills or cures. But if the *Apoplexy* proceeds from a hot Cause, and that the Dis-

temper

temper seems inflammatory, then presently take a large Quantity of Blood out of the *Jugular Veins*, and repeat it as often as there is Occasion; by which, if the Distemper is curable, some Relief will arise. A Looseness is by all means to be promoted, and we are to give Diluters, Attenuants and Diureticks at the same time, keeping the Patient as much as we can out of Bed, especially from lying down.

As the Applications in the *Fit* are of a medicinal Kind, it being too acute a Disease to admit of any Helps from Diet, yet that may be of great Use for Prevention; therefore a thin, slender, cool, and regular Diet, opposite to the particular Symptoms above-mention'd, will be useful; so that the Regimen is to be varied according to the Cause of the Disease, which may be collected from the Constitution of the Patient in these *Apoplexies*, which depend upon a sanguineous Cause; the Regimen prescrib'd in a sanguineous Constitution, in *Part II.* of this Treatise is proper. Fat and phlegmatick People, who are very subject to this Distemper, ought to give Attention to the Rules set down in the same Place, in their Case; and as there are *Apoplexies* from inveterate *Gouts*, the Regimen of such must be different from both, as I shall explain hereafter in treating of the *Gout*, the Intention being to translate the Gouty Matter upon the Extremities of the Body: and all those who have a Disposition

to

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to this Distemper, ought never to go to Bed
with a full Stomach, nor to lie with their
Head low.



CHAP IV.

Of Chronical Distempers.

Of a Palsy.

A *Palsy* is a Resolution or Relaxa-
tion of the nervous Parts from *Definition.*
their natural Tone, by which means their
Motion and Sense, either one, or both, all
over the Body, or in some particular Part or
Parts, are impair'd, so as to be unable to exert
their natural Functions.

The best Rules of Diet in this
Disease are taken from the Know-
ledge of its Causes; for whatever stops either
the Flux of the Spirits, or that of the Blood
to any Part, induces a *Palsy*, for both are
necessary for Sensation and Motion; such are
all the Causes of an *Apoplexy*, an *Epilepsy*,
extreme and lasting Pains, the Suppression
of usual Evacuations, either natural or mor-
bid, Translations of diseased Matter in acute
Distempers, whatever distends, distorts, com-
presses, or contracts the Nerves; strong and
strait

strait Ligatures, Luxations, Fractures, any Inflammation in the Integument, or membranaceous Sheath of a Nerve, especially in the *Plexus*, where they are tied together; likewise serous Defluxions, Excess in astringent Aliment, chiefly unripe Fruits, drinking too much warm Water, is weakening and relaxing; also Excess in Tea or Coffee; extreme Heat or Cold, poisonous Fumes of *Arsenick* or *Mercury*.

This Distemper is more or less dangerous according to the Cause, or the Extent and Seat of the Disease; for when the original of it is in the Brain, it is most dangerous; when it seizes the Heart or Organs of Breathing, it is fatal; because Life cannot be continued a Moment without the Use of those Parts.

Difficult to cure. A *Palsy* succeeding an *Apoplexy*, Convulsions, the Colick, and other Affections of the Brain or nervous System, if it does not grow better in a little time, or give Way to Medicines, it commonly remains incurable.

Regimen. The Regimen in this Distemper should be warm, attenuating, consisting of spicy and cephalick Vegetables, such as produce a feverish Heat; because such are necessary to resolve the Viscosity of the Fluids. Of such as consist likewise of an acrid, volatile Salt and Oil, as Mustard, Horse-Radish, &c. stimulating by Vomits, sneezing, relaxing the Belly by purging, and diluting strongly at the same time, promoting
Sweat

Sweat by such Motions as can be used; or other Means, and strong *Frictions* are here very useful; but Bleeding is to be used or omitted according to the Symptoms which affect the Brain: It relieves indeed, in any inflammatory Disposition of the Coat of a Nerve, yet it is not convenient in general for all Persons; for some *Paralyticks* are cold, and others of a hot Constitution; therefore Remedies ought to be of a different Kind, as is usual in the Scurvy itself.

The most noted Medicines in this Case, are of *Vipers*, *Amber*, *Earth-worms*, *Woodlice*, *Emets*, *Antimonials*, *Mercurials*, *Steel Preparations*, the *Antiscorbutick Juices*, with compound *Horse-radish Water*, and Juice of Oranges, *Gum Guaiacum*, *Tincture of Amber*, *Spirit of Hartshorn* with *Amber*, *Bezoar Mineral*, &c. And externally, *Fomentations*, *Liniments*, *Cupping-glasses*, *Blisters*, nettling the Members affected; also putting the relax'd Part into Grains, after the Wort is drawn off, or into the Belly of a Beast newly killed; or lastly, an artificial or natural Bath, as that in *Somersetshire*; likewise *Issues* and *Setons* are proper in this Case.

Of an Hemiplegia and a Paraplegia.

A *Hemiplegia* is when only half of the Head, and of the rest of the Body on that Side is affected, after the manner of an *Apo-plexy*.

A *Paraplegia* or *Paraplexia*, is, when the whole Body, except the Head, is affected by reason of the Spinal Marrow's being obstructed; and more commonly this and a *Hemiplegia* are secondary Distempers, tho' sometimes they are primary; Sense and Motion, or both, are either entirely lost, or much impaired.

When either of those Distempers immediately follow an *Apoplexy*, *Epilepsy*, and other Diseases, they are commonly called *Palsies*; but a *Palsy* is a different Distemper, as plainly appears by what has been said of it already.

The Cure. Vomiting and purging are proper in all *Paraplegia's*, to cleanse the first Passages; and Bleeding is necessary in plethorick Bodies. In the next Place Sudorificks are very useful, mix'd with Specificks; a Decoction of *Sassafras* with Rosemary and Juniper-Berries is very proper; and for the rest of the internal Medicines for the Cure of these two Distempers, use those directed in an *Apoplexy* and *Palsy*. A Fomentation made with a Decoction of *Emets* and their Hillocks in common Water, used every Day to *paralytick* Limbs, often proves very beneficial, and sometimes procures present Relief, by restoring the Parts to their natural Strength.

Of the Epilepsy or Falling-sickness.

An *Epilepsy* is a Convulsion or convulsive Motion of the whole The Definition. Body, or of some of its Parts, with the Loss of both internal and external Senses, attended with violent *Concussions* and reciprocal involuntary Motions of all or some of the *Muscles*, with alternate Rest, and new Insults thereof. It is called the *Falling-sickness*, because the Persons affected with it fall suddenly upon the Ground.

The Causes of this Distemper are various; sometimes an hereditary or Family Disposition from Parents; The Causes various. a sudden Fright of the Mother when with Child of the Patient; an ill Affection of the Brain by Wounds, Bruises, Blows, or Contusions; *Abscesses*, acrimonious *Serum*, bony Excrescencies of the Inside of the Skull, its pressing down upon the Brain; Inflammation, Corruption, or Corrosion of the *Meninges* or Membranes of the Brain; Repletion or Fullness, Heat, Drunkenness, intense Study, Terror; all violent Affections and Irritations of the Nerves in any Part of the Body; especially by acrimonious Things in the Stomach or Bowels, by Worms, by Teething, and Acidity in the Stomach in Infants; by some Contagion or purulent Matter after acute Diseases; likewise by Suppression of usual Evacuations, as the *Menses*, Piles, and Urine, &c. also by *hysterical Affections* contracted
D d by

by Accidents in Lying-in; and often by too great *Inanition* or Weakness, occasioned by want of due Nourishment; by Fragments or Splinters of Bones, or sharp Instruments hurting the *Meninges* or Brain, or Quicksilver carried thither any how; by the Caries of a Bone, black Choler, or venereal Ulcers corrupting or corroding the *Meninges* or any Part of the Brain.

Hence it is evident, that different Medicines and different Indications are requisite to cure this Disease, according to the known Variety of the Cause, the peccant Matter, and the Place to which the Remedy ought to be applied, and by which the Evil is to be eradicated: Hence likewise is sufficiently exposed the Vanity of the celebrated *Specificks* and Methods, which boasting idle People do brag of in this Disease.

And it is also evident, that the *proximate Cause* of all true *Epilepsies* is always the too great Action of the Brain upon the Nerves serving for Motion, and the Privation of that in the Nerves dedicated to Sensation; and that the Causes which create the reciprocal Paroxysms are many in Number and Variety.

The Cure. The Intentions in the Cure of this Disease must be different, according to the Cause, as I have just now observed: Bleeding and plentiful Evacuations, when there is a *Plethora* or inflammatory Disposition in the Brain, are necessary; and Ali-
ments

ments that are without Acrimony, demulcent, avoiding every thing which stimulates, and taking such Things as are opposite to the particular Acrimony that causes the Distemper; relaxing the Belly without irritating. In acute and periodical Pains to take anodyne Substances; but if the Disease be the Consequence of an hysterical Disposition, a warmer Regimen is necessary, in which Case anti-hysterick Medicines are proper. If the Cause is in the Stomach, generally Anti-acids relieve; if they are not flatulent or windy, several have been cured by a Milk Diet; but in Case of Acidity in the Stomach it will do Harm. When the irritating Cause is in some outward Part of the Body, it is proper to eradicate it by Suppuration; if it proceeds from Gnawings and Irritations of Worms, Teeth, sharp Humours turning Milk sour and curdled like Cheese, or any other Acid in Infants, *Diacodium* or *Diascordium* given them unseasonably, or the Contagion of the *Small-pox* in the first State: Hence the *testaceous Powders*, *Anodynes*, *Paregoricks*, *Antihystericks*, all Medicines against Worms, and a seasonable Cutting of the Gums, and carrying off the acrimonious Matter from the Bowels by gentle Purges; then all these, I say, become, by their Operation, *Anti-epileptic Medicines*.

But if the Cause proceeds from a Stoppage of the usual Evacuations, as the *Menses*, *Cleansings* in Women, the Piles, or Urine, &c.

it may be remedied by dissolving the viscid Matter, and opening the Obstructions: In this Case Blisters, Issues made with Causticks, Steel Preparations, forcing Medicines, such as provoke the *Menses* and open the Piles, and Diureticks are all proper.

An *Epilepsy* from *Inanition* or Weakness may be cured by a nourishing Diet, easy of Digestion, and a proper Use of nervine Medines; and the following are reckon'd amongst the *anti-epileptick Specificks*; *Native Cinna-bar*, *Wild Valerian*, *Male Piony Roots* and *Seeds*, *Flowers of Lilies of the Vallies*, *Seeds of Rue*, *Mistletoe of the Oak*, *Castor*, *Campfire*, *Rosemary*, *Earth-worms prepared*, the Gum and Wood of *Guaiaicum*, the Salt and Oil of *Amber*, *Peacocks Dung*, with a great many more too tedious to enumerate in this Place.

Epilepticks ought to breath in a pure *Air*, untainted with any Steams, even such as are very fragrant; and their Diet should be nourishing, of easy Digestion, avoiding *Hogs Flesh*, *Water Fowls*, and all Vegetables that are pungent, windy, and, generally speaking, all Fruits, especially Nuts; they should use but little Wine, and none if they have not been accustomed to it; they ought not to turn round nor stand on Precipices, to keep regular Hours for Eating and Sleeping, for every unusual Thing is a Stimulus: But of all Things, the most necessary is to avoid the Occa-

Occasions of violent Passions of the Mind, and keeping themselves chearful.

Of Melancholy Madness.

That Disease is called by Physicians a *Melancholy*; under which the Patient labours long, and is obstinately delirious without a Fever, and always intent upon one and the same Thought.

This Disease arises from that Malignity in the Blood and Humours, which the Ancients have called *Black Choler*; and tho' this Disease begins in the Mind, yet it renders the *Choler* black in the Body very soon.

It will be therefore necessary to give a small Sketch of this wonderful Disease, the Doctrine of which is supposed to be so obscure, that Antiquity is unjustly blamed for it.

If the most fluid Parts of all the Blood be dissipated, and leave the less moveable united in the Body, then will the Blood become thick, black, fat, and earthy; and this Defect is called by the Name of an *atrabiliarian* Humour, or melancholy Juice.

The Cause whereof is whatever expels the most fluid Parts of the Blood, and fixes the rest: A violent Exercise of the Mind; the dwelling Night and Day upon one and the same Object; a constant Wakefulness; great Motions of the Mind, whether Joy or Sorrow; great and laborious Motions of the Body, often repeated, chiefly in a very hot and dry Air; to these may be

The Causes.

refer'd immoderate *Venery*; rough, hard, dry, earthy Aliments, long used without Motion or Exercise of the Body to digest them; the like Drink; Parts of Animals dried in Smoak, Air, or Salt, chiefly of old and tough ones; unripe Fruits, and mealy and unfermented Substances; astringent coagulating, sticking, and cooling Medicines, and slow *Poisons* of the same Nature; hot Fevers hanging about long, often returning without a good *Crisis*, and going off without the Help of diluting Means.

When this Evil, already bred in the Blood, and produced by the abovementioned Causes, does yet infect equally all the circulating Mass of Humours, it will produce some Diseases, which will appear immediately, and are mostly as follow: The Colour of the Patient internally and externally is first paler, yellower, and more tawny; livid, black with like Spots; the Pulse slower; the Circulation through the Blood-vessels free, more sparing through the Side-vessels and less free; hence a slower, less, and thicker Separation of all the secretory and excretory Humours, and a less Wasting of them; a lessen'd Appetite; a Leanness, Sorrowfulness, Love of Solitude; all the Affections of the Mind violent and lasting; an Indifferency to all other Matters; a Laziness as to Motion, and yet a very great and earnest Application to any Sort of Study or Labour.

Its

Its Matter therefore is the Earth and thick Oil of the Blood united and closed up together, which is worse in its Effects, and more difficult to cure, according to its Degrees of Fluidity, Softness, Dryness, Thickness, intimate Mixture, and Time of being so. Hence the *Diagnosticks* and *Prognosticks* are plain enough, and the Rationality of the Cure does also occur easy enough from these Principles. Thus far I have transcribed the learned *Boerhaave's* Sentiments of this Distemper.

The *atrabilarian* Constitution, or a black, viscous pitchy Consistence of the Fluids, which most frequently produces this Disease, makes all the Secretions difficult and sparing; the Intention therefore ought to be to render the Humours fluid, moveable, and carry them out of the Body, especially the *Bile*, which is viscous; but *Sudorificks* are not here so proper, because they thicken.

Therefore the Diet prescrib'd, Chap. VIII. Part II. in an *atrabilarian* Constitution, is very proper in this Case, to which I refer the Reader.

The *learned Author* just now mentioned relates an Instance of a Patient, who, by a long Use of Whey, Water, and ripe Garden-Fruits, evacuated a great Quantity of black Matter, or *Choler*, and recover'd entirely his Senses. Cold Bathing, and especially a sudden Immersion into the Sea, has produced very good Effects by acting upon the Nerves and Spirits.

Madness proceeding from a *Plethora*, or too great Fulness in young, strong, hale People of a hot Constitution, is cured by plentiful Bleeding, Purging, Vomiting, and other Evacuations, with Diluters; and the Weakness which succeeds Madness requires a more refreshing and warm Diet, and especially the Use of *Chalybeat* or Steel Waters.

If this Distemper continues long, it produces Foolishness, Epilepsies, Apoplexies, furious Madness, Convulsions, Blindness, wonderful Fancies; for some will imagine themselves to be Beasts, or to be earthen Vessels, or they will fancy themselves dead; others will crow like a Cock, believing themselves to be such a Creature; others laugh, sing, cry, sigh, groan and belch; others obstinately refuse to eat any Victuals, as believing they are actually dead; some think themselves Kings, Prophets; others a Grain of Wheat, Grass, or Wax: Sometimes they have great Evacuations of Urine, clear like fair Water; at other times very thick; a Retention, Accumulation, and often a sudden Excretion of bloody Fæces in the Vessels of the *abdominal Viscera* or Belly; an obstinate Costiveness, with a thin and frequent Spitting, and they can endure to be without Sleep, Aliment, or Fire, even to a Wonder.

This Distemper grows worse upon taking Medicines that weaken and evacuate roughly, or such as put the Fluids into a violent Motion; therefore the curative Indications will
be

be to bring the Fluids of the Brain and Nerves into a good Order; by withdrawing, *first*, the Mind from the usual Object to others contrary to the same, and raising artfully, if possible, another Passion of the Mind, contrary to the *melancholy* one; by fixing sometimes with them in their false and deprav'd Fancies, or often opposing the same with great Force.

Secondly, By opening, softening, inciding, and stimulating the Obstructions, or the Cause, or the Effects of a false Imagination, with Mineral Waters, Whey, Water and Honey, *Splanchnick*, *Hepatick*, or *Anti-hypochondriack* Medicines and Decoctions; likewise Waters made with the Addition of *lixivious* or compound Salts, especially *Nitre*; also loosening Mercurials, Vomits, Motions, Exercise, and Riding; and Medicines which cleanse and purge the Womb, or the Piles, Bathings, Ointments and Plasters, and easing the Symptoms by Bleeding, plunging into cold Water, and using Carminatives and Opium sometimes.

Of Madness from the Bite of a Mad Dog, or any other Creature, called Hydrophobia.

The *Fury* or *Madness* mostly proceeding from the Bite of Mad-Dogs is call'd *Dog-Madness*; and from that terrible Symptom of dreading Water, an *Hydrophobia*.

It

It almost ever arises from other Animals, which were first mad, and that by Contagion: tho' also sometimes of its own accord in some acute Fevers, as has been observed, and is well attested. Almost all sorts of Animals may be affected with this Evil, and by their Contagion infect others, and even Men.

Dogs, Cats, Wolves, Foxes, Horses, Affes, Mules, Oxen, Sows, Monkies, Turkey-cocks, and Men, all these being first mad themselves, have communicated the same Madness to others; but it is common to none so frequently as to Dogs, Wolves and Foxes, and it invades these chiefly from inward Causes, without catching it from any others.

A hot Country, open and exposed to violent Heats, or to very cold raw Weather; hot and dry Weather long continued; the living upon rotten, stinking and worm-eaten Meat; Want of Drink; Worms grown in the Kidneys, Guts, Brain, or the Inside of the Nostrils; all these are preceding Causes of Madness in Animals just now mentioned.

The Symptoms of a Person infected with this Poison, after different Distances of Time, are much in the following Manner: The Place where he was bit pains him; then follow wandering uncertain Pains in other, but chiefly the nearest Parts; a Weariness, Heaviness, and Slowness succeed in the whole System of the Muscles; his Sleeps are disturbed, uneasy, all with Frights, Convulsions and Catchings in the Tendons; he is continually
restless,

restless, sighs, looks dejected, and affects to be alone; and it is much after this Manner that this Disease begins and finishes its first Stage.

Then all the foregoing Symptoms are increased, and there follows besides a prodigious Narrowness and Pressure about the Heart and Chest, Breathing is difficult, and accompanied with Sighs; he frequently shakes all over; his Hair stands an end, and trembles all over at the Sight of Water, or any sort of Liquors, or even at the Sight of transparent Things, or reflecting like Looking-Glasses; he loses his Appetite entirely, yet he can swallow any thing that is very dry and solid: The Touch of any Moisture, chiefly with his Lips or Tongue, creates an incredible Anguish, Tremors, violent Convulsions, and a Raving; he vomits tawny glewish *Choler*, or green, like Leeks; he grows very hot, feverish, sleepless; is troubled with a *Priapism*; and he thinks disorderly of Things quite foreign and unusual. Thus it goes on, and here ends its *Second Stage*.

But afterwards every thing grows constantly worse; for he soon lolls out his rough and dry Tongue, gapes wide, speaks hoarse, has a great Drought, grows raving and furious at every Attempt to drink, and at the Sight or Touch of all Drinkables and Liquors; he gathers Froth in and about his Mouth, endeavouring the spitting of the same upon the By-standers, and that even against his Will; bites and snaps at every thing within his

his Reach, and that likewise involuntarily, nor yet to be withheld from those; he gnashes his Teeth with Froth, snarling like a Dog; his Pulse and Breathing begin to fail, cold Sweats break out on all Sides; he raves in the highest Degree, notwithstanding which he is all the while sensible, and is afraid that he shall unwillingly hurt the By-standers.

Hence you may always reckon upon his dying (within the fourth Day from the first State of his Illness, convulsed with a most terrible Anguish upon drawing his Breath.

As Brevity, and the want of Leisure and Room at present, oblige me to proceed to the Method of Cure without any farther Disquisition about the Nature of this dreadful Contagion, I present the Reader with the following short, easy, and in all Probability the most infallible Method hitherto discover'd.

A *French* Physician of the University of *Bordeaux*, and a Gentleman of Note and great Merit in his Profession, has publish'd a *Treatise* * some few Years ago, in which there is a *Dissertation* on the *Hydrophobia*, wherein he candidly communicates a very rational Method of curing this terrible Contagion, after a new and easy manner, of which he has made several Trials, and always with the desir'd Success, as may be seen in his own *Treatise* at large; therefore as this

Remedy

* *Dr. Desault's Treatise translated from the French, by John Andree, M. D. and printed for John Clarke, under the Royal-Exchange, Cornhill, 1738.*

Remedy he proposes (in all human Probability) may prove successful and certain, (at least it bids the fairest of any hitherto known in the *Art* of *Physick* for that desirable End) I thought proper and necessary to communicate the same to my Readers, in order to impart it to all their Friends and Acquaintance.

The Remedy consists of a *Powder* called *Palmarius's Powder*, and an *Ointment* made in the following manner.

The Powder.

Take of the Leaves of Rue, Vervain, Sage of Virtue, Plantane, Polypody, common Wormwood, Mint, Baum, Betony, St. John's Wort, lesser Centaury and Coraline, of each equal Parts; mix them, and reduce them to a Powder.

The Ointment.

Take one third Part of Mercury reviv'd from Cinnabar, one third Part of human Fat, and as much of Hog's Lard, mix all very well till all the mercurial Globules disappear.

Here I give you the Author's Method in administering the *Powder* and *Ointment* in his own Words.

‘ I order one Dram of the Powder (says
 he) ‘ in White-Wine every Morning; and
 ‘ Persons of the fair Sex, who cannot bear
 ‘ Wine, take it in a Draught of warm Wa-
 ‘ ter.

‘ In this Method I continue 30 Days with
 ‘ those who have been bit in an uncover’d
 ‘ Place, or have receiv’d some considerable
 ‘ Wound by the Bite; but to those who have
 ‘ been bit in a Place that was cover’d, and
 ‘ had only a few Holes made with the Teeth,
 ‘ I give the Powder only 20 Days.

‘ From the first Day of using the Powder,
 ‘ I make them administer a Friction of one
 ‘ or two Drams of the Ointment upon the
 ‘ Wound and neighbouring Part, and spread
 ‘ the Ointment all over the Part that was
 ‘ wounded.

‘ The Friction is repeated every other Day
 ‘ in the beginning, and after the third time,
 ‘ every third Day; after the 6th, every 4th,
 ‘ till two or three Ounces of the Ointment
 ‘ have been used; the Quantity of which
 ‘ ought to be proportion’d to the Strength,
 ‘ Age, Temperament, Sex, the Bite, &c.

‘ But when the Patient comes to me seve-
 ‘ ral Days after the Bite, for fear of Acci-
 ‘ dent, and to prevent the *Rabies* or Mad-
 ‘ ness, I order to make the Frictions every
 ‘ Day to four or five times, and increase the
 ‘ Dose of the Powder sometimes to half a
 ‘ Dram; afterwards I leave a Day or two be-
 ‘ tween to avoid a Salivation, which might
 ‘ ensue

‘ ensue from the daily use of the Ointment,
‘ altho’ but a particular Friction.

‘ In the last Place, I let him keep his
‘ usual Meals, forbidding him all Excess; for
‘ Experience proves, that they increase all
‘ other contagious Distempers. I let him
‘ drink Wine with moderation: I take Care
‘ that they be not left alone, and desire their
‘ Relations and Friends to keep them Com-
‘ pany, forbidding them to mention Madness
‘ to them, or mad Creatures.

A more circumstantial Account of this Method may be seen in the Author’s own Observations, to which I refer the Reader; but here I cannot omit observing, that if 20 or 30 Grains of native *Cinnabar* were added to every Dose of the Powder, the Cure might be thereby perform’d with much greater Certainty. As for his directing to make the Ointment with human Fat, &c. it is needless; for the common strong salivating Ointment, which is always ready prepar’d in the Shops, is every bit as good, if not better.

The Experiments of the ingenious Dr. *James* seem to confirm the Efficacy of the above Method, at least that of *Mercury*, in curing the Bite of a mad Dog; wherefore I beg leave to transcribe Part of the Conclusion to his *New Method of preventing and curing the Madness caused by the Bite of a mad Dog*, laid before the *Royal-Society*, 1741.

‘ First I would (says he) rub into the
‘ Place wounded as soon as possible, a Dram
‘ of

‘ of the Ointment recommended by *Default*.
 ‘ I would then give Turpeth Mineral by
 ‘ Way of Vomit, in a Dose proportion’d to
 ‘ the Age and Constitution of the Patient ;
 ‘ and this I would repeat more than once, at
 ‘ Intervals, which would secure it from rais-
 ‘ ing a Salivation, always remembering to rub
 ‘ the Wound once in a Day, or oftener, with
 ‘ the Mercurial Ointment.

‘ But when thro’ Neglect, any Symptoms
 ‘ of approaching Madness should appear, I
 ‘ would increase the Quantity of Mercurial
 ‘ Ointment, and give Mercury in some Form
 ‘ or other internally, in as large Doses, and
 ‘ those as often repeated as could be done,
 ‘ without hazarding the Patient by a Saliva-
 ‘ tion too precipitate.

‘ In both Cases I would recommend the
 ‘ Cold-Bath, as a Thing of great Conse-
 ‘ quence, as soon as ever the Patient can
 ‘ make Use of it without Danger ; but in
 ‘ this Case, as in all others, many accidental
 ‘ Circumstances will occur, for which it is
 ‘ impossible to lay down universal Rules ; it
 ‘ must therefore be left to the Prudence of a
 ‘ Physician to guard against, and remedy In-
 ‘ conveniencies arising from particular Acci-
 ‘ dents.

Of the Scurvy.

It is impossible to define this Distemper by Words, containing any simple or distinct *Idea* ; for it is rather a Name used to signify

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a Multitude of Symptoms, different and sometimes opposite in their Causes and Cures.

It is a Disease affecting the Inhabitants of cold Countries, and among those, such of them as inhabit marshy, fat, low, moist Soils, near stagnating Waters, fresh or Salt; and it invades chiefly in the Winter Season, such as lead a sedentary Life, or live upon salted and smoaked Flesh and Fish, or Quantities of unfermented mealy Vegetables, and drink bad Water; and likewise such as are *Hysterical* or *Hypochondriacal*, and sometimes such as have taken great Quantities of the *Bark*, without proper Evacuations; so that from these Causes the best Rules for Prevention may be taken.

The Symptoms of this Distemper are a spontaneous Lassitude or Sensation of Weariness, being unrefreshed by Sleep, laborious Breathing upon small Motion, cold Swellings in the Legs, going off and returning; sometimes Paleness, or a livid Colour in the Face, Spots on the Skin of various Colours, as red, violet-colour'd, yellow, or livid; oftentimes an ill Smell in the Mouth, and of the Breath, painful and bleeding Corrosions of the Gums, and by these Means the Teeth grow bare and loose; Fluxes of all Sorts, untractable Ulcers, especially in the Legs, with a *gangrenous* Appearance in the Skin; the Itch, dry and crusty Eruptions, and sometimes a small Degree of *Leprosy*; the Blood when taken away is black, grumous, and the red Part

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without a due Consistence ; the *Serum* very salt, and of a yellowish green; wandering Pains in the Limbs, increasing when warm in Bed, and sometimes a feverish Heat.

These Symptoms arise from a bad Temperature of the Blood, either too thin, or too thick, being of a saline Constitution, either from an acid, *alkaline*, or *Muriatick* Cause, which requires very different and oftentimes contrary Remedies; for which Reason, See Part II. Chap. VIII. where I have treated of *acid* and *alkaline* Constitutions.

The *Scurvy* of Seafaring People is generally cur'd by *Acids*, such as all Sorts of ripe Fruits, Lemons, Oranges, Butter-Milk ; but all *alkaline* Spirits do harm; and acid Spirits, as that of Salt and *Nitre* are proper for them. If the Symptoms are attended with an ill Smell of any kind, either in the Mouth, Breath, or Urine, with Drought, Heat, Bleeding of the Gums, or of any kind, such a Disease will be cur'd by the Use of Acids, and none better than Whey; and in this Sort of *Scurvy* Steel Waters are commonly effectual.

But if the *Scurvy* be *muriatick* or briny, occasion'd by a Diet of salt *Flesh* or Fish, the Plants commonly called Antiscorbutick, as *Water-cresses*, *Scurvy-grass*, and *Brooklime*, may be taken with Success, but always mix'd with Acids, as the Juice of Lemons and Oranges; and all the Pot-Herbs which are antiacid, as describ'd in Part II. Chap. VI. are a proper Diet in this Case; but if there

be

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be a high Degree of Heat and Inflammation, all the hot Antiscorbuticks will be very improper.

When a Patient is pale, cool without Thirst, with pale or natural colour'd Urine, and has made Use of an *acescent* Diet for any time, that the Eruptions are not of a high inflammatory or livid Colour, then the warm Antiscorbuticks, animal Food, and Salts are necessary.

In the *Scurvy* great Attention should be always given to the Condition of the Mouth, Gums and Teeth, from which the Nature and Degree of the Distemper may be pretty well known.

All sharp and strong Purges injure scorbutick Constitutions; but Lenitives are of great Service, and Bleeding is not proper, unless where the Symptoms are urgent and inflammatory.

Of a Cachexy, or ill Habit of Body.

A *Cachexy* is so called from an ill Habit of the Body. It proceeds most *Causes.* commonly from the Intemperance of the Person, or the ill Cure of some preceding Disease; from a *scirrhus* Tumor of the Liver or Spleen, or from a too long and profuse Flux of the Piles, or other Fluxes; from long continual Fevers, or intermitting Fevers ill cur'd; from a Surfeit, or too plentiful use of spirituous Liquors; from the

Green-Sickness, from an Obstruction, or too great a Flux of the Menfes; from Aliments of unfermented mealy Substances, as *Pease*, or such as are coarse, fibrous, fat, sharp, watry, and rough; from Bodies that cannot be digested at all, as Clay, Cinders, Chalk, Sand, Tobacco-pipes, Lime, &c. from a Defect of animal Motion in lazy and idle People, and such as sleep too much.

The *Diagnostick Signs* are a Paleness *Signs.* of the Face, with a livid, yellow, greenish, or ruddy Colour; and frequently with a tumid or bloated Habit of Body, a Sluggishness; there is also often a slow Fever, scarce perceivable by the Person that has it.

The Cure is to be begun with a Vom- *Cure.* it; but before a Vomit it will be adviseable to make use of saline Digestives to dissolve the Viscidities, as Cream of *Tartar*, vitriolated *Tartar*, Salt of *Wormwood*, Tincture of Salt of *Tartar*, Elixir *Proprietatis* with *Tartar*, and the absorbent testaceous Powders; but if an Emetick be not judged convenient in the Beginning, a Purge may be given, and repeated as need requires; and then after these Things have been done, we may advantageously proceed to the Use of *Chalybeats*, and *Fuller's Ecphratick Mixture* is a powerful Remedy in this Disorder.

This Distemper sometimes disposes to Consumptions, Bloatedness, and Dropsies, and is attended often with Palpitations of the Heart; therefore

therefore the Rules of Diet must be drawn from the Nature of the Symptoms.

Of a Consumption.

A *Consumption* is commonly defined to be a Wasting of the whole Body, arising from an Ulcer of the Lungs, but not justly; because I have open'd the Bodies of several who died of this Distemper, whose Lungs I found without Ulcers, but full of Tubercles, Stones, and fabulous Matter; wherefore a Consumption is better defined to be a Wasting of the whole Body from a bad Conformation of the Lungs. *Willis Pharmaceut. Rat. Part II. Sect. I. Chap. 6.*

A *Consumption*, or *Marasmus*, is a Wasting of the whole Body, or some of its Parts, arising from a Distemperature of the Fluids, or from their Defection, or an unequal and disproportionate Heat. Dr. Christopher Bennet, in his *Theatrum Tabidorum*, translated by Quincy, Page 135.

By these two last Definitions we see, that an Ulcer of the Lungs is neither the Antecedent, nor Concomitant Cause of a *Consumption*, but only a Symptom, as will evidently appear presently, in a few Passages abstracted from a Dissertation of a modern Author*, supported by Reason and Observation, the surest and best Guides: afterwards I give the Reader his Method of curing this Di-

E e 3 stemper,

* Dr. *Desault's* Dissertation upon Consumptions.

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stemper, which I found in many Instances
to answer the Intentions he proposes.

Before I declare the Causes of a Consumption (says he) I thought proper to give a Description of them in behalf of such as are not of the Profession who may read this Dissertation.

A *Consumption* attacks Youth sooner than other Ages; that is, from 18 till the 35th Year it makes its principal Havock. *Hippocrates, Aph. 9. Sect. 5.* Not that the other Ages are exempted from it, since we see consumptive People under and above the Time set down in the *Aphorism*; but not so often.

1. Those who have a narrow Chest, a long Neck, high Shoulders, like Birds Wings, are most subject to it; of those *Hippocrates* speaks in his first Book of Epidemics.

2. Those who have the Misfortune of being born of consumptive Parents are very subject to it; for this Distemper has this in common with many others, that it is propagated by Inheritance.

3. Such as are obliged to live with consumptive People, to wait on them, may contract it, if they are any ways inclin'd to it, for it is contagious; thus Women who attend their consumptive Husbands catch it of them, and Husbands of their Wives.

The Disorder manifests itself, and makes its Progress in the following manner. The Patient seems to have a Cold, he is seiz'd with a dry Cough, which fatigues him most
at

Ch. IV. *thro' the various Stages of Life.* 439

at Night: Afterwards he brings up a well-digested Phlegm of a sweet Taste.

Nevertheless as this Cough continues, as it exceeds the Bounds of a common Cold, as it goes daily increas'g, as the Patient's Legs are observ'd to waste, and the rest of the Body in Proportion, as his Colour changes, and he grows pale and yellow, as the Phlegm changes Taste, and becomes a little bitterish, as some small Quantity of Blood is mix'd with it, as a slow Fever associates with it, with a Pain in the Breast, and in short, when he is at the Brink of the second Stage, he is frighted, and very much alarm'd.

Besides these Symptoms which Authors have taken Notice of, and which establish the first Degree, I have always found a considerable Disorder in the Liver, so that an Obstruction in this Bowel plainly appear'd from its Hardness, and sometimes a great Pain. I am surpriz'd to see, that Authors have not taken Notice of this, which however is a Symptom deserving of great Attention, since it is of great Importance for the Discovery of the Cause of *Consumptions*, and of the Agreeableness of the Remedy I have to propose.

Notwithstanding all the Remedies, Secrets, and other Specificks, the Patient grows worse, and comes to the second Stage, which makes itself known by the Cough being stronger and more frequent by Night, by Night Sweats, which fatigue and drain the

Patient, by the Quantity of Blood in his Spitting, and lastly he comes to spit Matter.

The Leanness to which he was reduced by the first Degree, increases considerably in the second; the Fever, stronger and more violent, has even some Returns, with cold Shiverings, which encourages his taking the Bark regularly, to stop at least the Returns complicated with the slow Fever, and to continue the Medicines to heal the Ulcer, the Existence of which is no more to be doubted. His Nails grow crooked, and the Distemper, becomes contagious in this Stage.

Let us observe, that it is not always necessary the Patient should spit Blood, to die consumptive; neither is it even necessary for the Patient to spit *Pus* to determine the Existence of a Consumption, as I shall prove by Observations made at the opening of consumptive Bodies. The Cough, the Spitting of certain Phlegm without Blood or *Pus*, the Wasting, the nocturnal Sweats, and lastly a Looseness, put an End to Life, it not being essential to this Distemper to spit Blood or *Pus*.

The Patient at last comes to the third Stage; his Leanness is at the last Period; he resembles a *Skeleton* covered with a human Skin, which is hard, wrinkled, and rough; his Breath smells strong, and what he expectorates stinks so that he loaths it; he brings up almost pure Matter, and his Life terminates with a Looseness.

Let

Let us now speak of the Causes of a *Consumption*: We shall divide them into concomitant and antecedent. The concomitant Cause of a Consumption, I say, consists in Tubercles and Concretions form'd in the Substance of the Lungs, and which are spread thro' its Lobes. These Concretions are like Hail-stones, and of different Dimensions.

These Tubercles in the Lungs are real, and fall under the Cognizance of the Senses, and are no Supposition invented by a *System-monger*, to explain the easier his *Hypothesis*. That great Observator *Hippocrates* speaks of them in his Book *de Morbis*: He makes them of two Sorts; some crude, which do not suppurate; and others which suppurate, and leave an *Ulcer*.

Etmuller, who has compiled the Opinions of the Moderns, has a whole Chapter *de Tuberculis Pulmonum*, *Lib. II. Part. II. Cap. 8. p. 436*.

Read *Morton's* Book upon Consumptions, he never open'd a consumptive Body where he did not find them: He mentions them in almost every Passage; he imputes to them all the Disorder, and thinks they are the Source of all the Symptoms of a Consumption.

Bonetus, in his *Practical Anatomy*, *Lib. 2. Sect. 7*. proposes several Observations collected from Dissections of Bodies; where the Tubercles have been deemed the true Cause of a Consumption, and the *Pus* and *Ulcers* only
as

as the Consequence of these same Tubercles suppurated and degenerated into Ulcers.

But why should we look for Proofs in Antiquity, why employ the Evidence of Foreigners? I appeal to all the Surgeons who have open'd consumptive Carcasses, and to the Physicians who have assisted thereat: Have they not regularly found in all these Tubercles, tho' less in Quantity in those who died of a long Consumption, they having had Time to melt away, and be consumed by Ulceration? Some however have always remained, Death having prevented their Suppuration. This being allow'd to be the concomitant Cause of a Consumption, it will be easy to explain all its Symptoms.

The dry Cough in the Beginning comes from the Pressure of the Tubercles upon the Ramifications of the *Aspera Arteria*, dispersed through the Substance of the Lungs. *Morton, p. 36.* The same Irritations which this Compression makes in the *Aspera Arteria*, squeeze at length a Phlegm out of the Glands, spread about the internal Membrane of the *Trachea*; and the Cough, which in the Beginning was dry and hard, becomes moist, and throws up the Matter press'd out of the Glands by the Strength of the Cough. *Mort. p. 34.*

The Difficulty of Breathing comes from these Tubercles, which fill up part of the Lungs, and lessen in Proportion the Quantity of Air which used to enter there; besides, the
Com-

Compression they make upon the Ramifications of the *Aspera Arteria* renders its Admission more difficult.

The Leanness and Wasting are the Effects of these Tubercles, and not the Ulcer of the Lungs, as has been supposed; and as it is of the greatest Importance for the Indication, which should be pursued in this Distemper, to prove that the Ulcer is not the Cause of the Wastings, we shall insert here the following Proofs.

1. *Hippocrates*, in his first Book of *Epidemics*, acknowledges a Consumption without an Ulcer of the Lungs. *Ægrotabant macilenti citra Pulmonum Ulcus*: They were sick and wasted without an Ulcer of the Lungs.

2. *Hippocrates* has also observed, that Leanness has begun before the Rise of the Ulcer, and that it is even far gone when the Ulcer appears.-----*Temporis autem progressu exasperatur Pulmo, & intus ulceratur à Pituita inbærente & putrescente, & gravitatem exhibet Pectori & Dolorem acutum ante & retro, caloresque acutiores in corpus incidunt.*

It appears from these Passages of *Hippocrates*, and especially the last, that the Wasting, Cough, Spitting, and slow Fever, have begun before the Ulcer comes on. *Temporis autem progressu exulceratur Pulmo*: It is only in the Course of the Distemper; *temporis progressu*, says he; in progress of Time.

3. Lastly,

3. Lastly we prove by an invincible Reason, that the Ulcer of the Lungs is not the Cause of a Consumption. There have been Persons who died of a Consumption with the whole Train of Symptoms, yet during the whole Course of the Distemper never spit any *Pus*; and upon the opening of their Bodies no Ulcers were found in their Lungs, but Tubercles in great Numbers. For Proof of this Fact we shall introduce the Observations † upon the Body of Mr. *Clever*, Merchant, of this City, and of a young Gentlewoman; and also *Willis's* Observations already mentioned.

The slow Fever depends as much upon the Obstructions of the Liver, as of the Lungs: When the Blood finds its Passage shut up in any Part, it rebounds in a greater Body into the other Vessels; besides, when the Blood, which has not been sufficiently broke in the Lungs, nor depurated in the Liver, does not give way, but resists the Impulse of the Heart and Arteries, it revives its Play, and occasions two or three Pulsations, where one would be sufficient, if it did not resist, and was thin and fluid.

The nocturnal Sweats are owing to the thick and gross Disposition of the Blood: When the Serum is not exactly mixt with the other Principles of the Blood, it easily escapes through the Pores.

It

† Observations of the Author in his Dissertation upon Consumptions, which see.

It is easy to comprehend the Spitting of Blood: Who can now be surpris'd, that a Vein squeezed between two Tubercles should open and furnish some Blood in the Spittle?

We are now come to the second Stage: Some Tubercles come to be inflamed; Matter is formed there; the Fever increases, as also the Difficulty of Breathing; the Tubercle bursts, and the *Pus* comes away like Spittle, which the Patient voids in abundance.

But as the *Pus* which was contained in this Tubercle served its Neighbours as a suppurating Cataplasm, they are not long before they are inflamed, and come to Suppuration in their Turn, and the Lungs are thus destroy'd and ulcerate every Day more and more. And now the Distemper becomes contagious, the Suppuration of the Tubercle breeds Worms, which institute the Characteristick of the Ulcer. These Worms spread themselves about the neighbouring Tubercles, as proper Beds for their Nourishment and Breeding, and by their Means it is that the Distemper becomes contagious.

[*The Author has shewn, in his Treatise on Venereal Disorders, that all Infection proceeds from Worms.*]

The Looseness comes from hence, that the Pores are destroyed by the Dryness of the Skin, which has begun with effacing the Pores of the insensible Perspiration, and now even stops up those which evacuate Sweat: The Serum not being well mixt with the
Blood,

Blood, and finding no more its former Outlets, falls upon the Feet and Legs, and afterwards upon the intestinal Glands, which brings on a *Diarrhæa*, and makes an End of Life.

We come now to examine the antecedent Causes which produce Tubercles in the Lungs, and shall make it appear, by an exact Enquiry, that they owe their Rise to eager and coagulating Juices, and not to sharp and corrosive ones.

Authors tell us, and we see it confirmed by daily Experience, that Grief is a powerful Cause to bring on a Consumption. The Soul being continually employ'd in Affliction about the Object which causes it, studies Night and Day to find out a Remedy: This continual Attention of the Soul employs the Spirits in the Brain, hinders their descending into the Stomach, the Appetite disappears, the Digestion suffers, the Chyle is sent glutinous and ill digested into the Blood, disposed to bring on Obstructions either in the Lungs or Liver.

But the free Course of the animal Spirits is not only suspended in the Stomach, but also in the Organs of Respiration; for we see Persons under Affliction forget as it were to breathe to that Degree, that as the Blood stagnates in the Lungs, they are oblig'd to fetch at Intervals deep Sighs, which are called sorrowful Sighs.

Besides,

Besides, Grief suppresses the insensible Transpiration. *Sanctorius*, Aph. 2. Sect. 7. And Consolation restores it, *Animi Consolatio liberam facit Perspirationem*. Aph. 6. Sect. 7.

For the same Reason Men of Letters, who keep their Spirits continually upon the stretch, by the Excess of Meditation are also subject to Consumptions, as *Morton* observes.

The eager Wines, according to *Etmuller*, produce abundance of Consumptions in the Province of *Moravia*, as being very proper to form Coagulations and Concretions.

[*The Author mentions a Case in his Dissertation, which proves how apt this Cause is to bring on a Consumption.*]

Melancholick Persons, according to *Morton's* Observation, are very subject to Consumptions, their Blood being disposed to form Obstructions and Tubercles: Likewise, pag. 27, he has observed, that Cold is always the Cause of Consumptions. His Observation agrees with that of *Hippocrates*, *Frigus genitor est phthiseos pulmonis, scilicet, venulis a frigore constrictis ac convulsis*. Cold is the Parent of the Phthisis of the Lungs, viz. when the Veins are drawn together by Cold.

Van Helmont has observed, that Steams of Spirit of Vitriol, and of *Aqua Fortis*, have sometimes occasioned Consumptions. This Effect proceeds from the Concretion of the Juices by these acid Vapours, which form the Tubercles.

From

From this Enquiry into the Causes which are capable of producing Tubercles in the Lungs, it appears, that they owe their Origin to acid and coagulating Juices; and if afterwards the Fluids grow pungent by stagnating there, it is an Effect of the Part which alkalises them; in like manner as we see some Fruits change their Taste, according as they come near to be ripe or rotten.

The Question then is, to look out for Remedies which can dissolve and destroy these Tubercles. This is the Indication which you ought not to lose out of Sight: They are the Obstacles which you must either conquer or die.

The *Roman Hippocrates*, *Baglivius*, in several Places of his practical Writings, exhorts us to give aperitive Medicines in all the Disorders of the Breast; and *Duretus*, in his *Coac.* p. 423. says, that the urinary Passages are the Emunctories of the Breast, the Flux of Urine being augmented, procures a Diversion of the Phlegm, which otherwise would take its Course to the Lungs.

These Authors not only propose that Indication, but also the Remedies which I make use of to discharge it. *Read Morton*, p. 81.

I don't at all doubt, says he, but by a prudent Choice and frequent Use of a thin and sharp Air, and by a long Use of balsamick, mercurial, and chalybeate Medicines and Mil-lepedes, but more especially of Mineral Waters, and other anti-scurphulous Remedies,
those

those Tumors may as well be destroy'd in these Parts as any other, and the Patient be freed from a phthifical and scrophulous Disorder, as we have often found by Experience.

This is very certain, for all the *English Consumptions*, generally speaking, proceed from a scrophulous Disposition; therefore, in the Accesses of such a Distemper, *aperitive* and *deobstruent* Medicines, free from much *Acrimony*, with the mild *Anti-scorbuticks*, will always prove the most effectual Remedies; but whatever heats too much, disposes to Suppuration; and it is upon these Principles that the Author establishes his Method of Cure in the following Manner.

' As soon as I am call'd to a consumptive
' Person of the first Degree, fatigued with a
' Cough, which at first was dry, and after-
' ward is become moist, which exceeded the
' Bounds of a common Rheum, accompanied
' with a slow Fever, Difficulty of Breathing,
' Leanness, &c. I examine immediately the
' Liver, where I constantly find a conspicu-
' ous Hardness and often a Pain.

' I afterwards examine if any general Me-
' dicines are indicated, in which Case I order
' the Patient to bleed and purge; I even
' repeat Bleeding when the Pain is violent,
' and if the Patient is young, heated with
' drinking of Wine, or spirituous Liquors, to
' prevent the Inflammation of the Tubercles.

‘ Then I apply a great Plaster of the *Empl.*
‘ *Diabotantum* upon the Region of the Liver,
‘ with which Mercury revived from *Cinnabar*
‘ is incorporated, or in default thereof the
‘ *Empl. Vigonis cum Mercurio*. Every Night
‘ I order the Plaster to be taken off, and the
‘ Quantity of a Dram of the *Mercurial Oint-*
‘ *ment* to be rubb’d in at the Swelling, and then
‘ the Plaster is put on again, which remains
‘ there Night and Day.

‘ Internally I give twice a-day the follow-
‘ ing Powder.

‘ Take of prepared Mars, Millepedes,
‘ Benjamin, red Coral and Crabs Eyes,
‘ one Scruple of each; mix all well to-
‘ gether to make into a Powder, to be
‘ taken in the Morning and to be re-
‘ peated at Night.

‘ Or made up into Troches in the following
‘ Manner :

‘ Take of Mars, Millepedes, Benjamin,
‘ Coral and Crabs Eyes, of each half an
‘ Ounce, Powder of Cinnamon three
‘ Drams, fine Sugar half a Pound; mix
‘ all together, and with the Mucilage
‘ of Gum Tragacanth made with O-
‘ range-flower Water, make Troches
‘ of two Drams each, of which let the
‘ Patient take one Night and Morning.

‘ After every Dose of the Powder or Tro-
‘ ches I order them to take a Draught of
‘ Ptisane

‘Ptisane’ made of Nettle-Roots, or Whey
‘well clarified, with which I mix two Oun-
‘ces of the Juice of Water-Cresses, and as
‘much of the Juice of Chervil; or some Broth
‘made of a Piece of Veal, Radishes, Cresses,
‘Brooklime and Chervil, or an Infusion of
‘Green Tea.’

The Powder is in two great a Bulk, as he orders it, therefore it would be much a neater Way, and much easier for the Patient to take, if he had ordered the Steel, Millepedes, and Benjamin in a Bole with Syrup of Balsam, and the testaceous Powders in a Julap, or in an Emulsion of Sperma Ceti, to be taken by two or three Spoonfuls after each Bolus, and at other Intervals. This shews the Injudiciousness of foreign Prescribers in dosing their Medicines in a neat and proper Form, though otherwise never so learned.

Our Author strenuously recommends Riding twice a-day, in all Stages of a Consumption, if the Weather permits, the Usefulness of which he demonstrates from Observation, Reason, and Experience. In the first Stage of a Consumption he allows light Meats of easy Digestion without any Seasoning; but in the second Stage, he orders the Medicines to be taken three times a-day, and makes the Patient live upon Cow’s Milk, boil’d and skimm’d, and mix’d with an equal Quantity of Green Tea, and sometimes without it, but a thorough Forbearance from all manner of

Flesh-meat: He likewise recommends the Use of Asses Milk, Chearfulness and Musick.

As *Consumptions* are mostly occasioned by Tubercles in the *Lungs*, there are some also that owe their Origin to Obstructions of the *Liver, Spleen, Pancreas, Mesentery, Kidneys, Womb, and Bladder, &c.* The Knowledge, Prognostick, Effects, Cure, and Palliation are easily drawn from the distinguishing Marks of each particular Bowel, of which no good *Physician* ought to be ignorant.

For a more ample Account of the Nature and Cure of this lingering Disease, I refer the Reader to the Author's Observations in his *Dissertation upon Consumptions.*

Of a Dropsy.

When a watery *Serum* is shed out of its Vessels and received into Cavities, or when stagnating it distends its Vessels too much, it is called a Dropsy. Which may take place consequently wherever there are such ferous Vessels, that is, in the whole Habit of the Body, and in each Particular thereof.

Therefore this Distemper may happen wherever there are ferous Vessels; an *Hydrocephalus* or Dropsy of the Head, which is only incurable when the Serum is extravasated into the Ventricles of the Brain; and it is generally fatal in Infants, when the *Sutures* are closed and the Skull will yield no more.

A Dropsy

A Dropsy of the Breast is attended almost with the same Symptoms as an *Empyema*, and cured by the same *Chirurgery*. A Dropsy of the Lungs, either by *Hydatides* or Water-Bladders, or by *Lympha* extravasated in the Body of the Lungs.

A Dropsy in the fore Part of the Windpipe like a *Bronchocele*. Likewise a Dropsy in the *Oviarium*, *Testes*, *Scrotum*, or *Uterus*.

An *Ascites*, or Collection of Water in the *Abdomen*. *First*, in the Foldings of the *Peritoneum*. *Secondly*, Between the *Peritoneum* and the Bowels. *Thirdly*, When the Water is contained in the membranaceous Coat of the Glands.

Sometimes the Air is so rarified in the Tumor as makes it hard and tight like a Drum, and from thence it is call a *Tympany*. When the Tension is from Air, it is easily distinguished by the specifick Gravity of the Patient, and so is Water. And when the Water or Lymph stagnates, or is extravasated under the Skin, it is called *Anasarca*. Whatever hinders the Return of the *Lymph* into the Veins, or breaks the Lymphatick Vessels, or obstructs the absorbent Vessels, so as the *Lymph* cannot be absorbed, or exhaled, produces a *Dropsy*; likewise any Stoppage of the Circulation will occasion a Dropsy, as by strong Ligatures or Compression.

The most of the Causes are hereditary Dispositions; drinking great Quantities of water

tery Liquors, which are not discharged again; violent acute Distempers; stubborn Obstructions of the Bowels; the Jaundice; obstinate intermitting Fevers; Bloody-fluxes; great Evacuations, especially of Blood; viscid Aliment and hard of Digestion; inveterate Scurvies: But the most common and most pernicious of all is the habitual and plentiful Use of spirituous Liquors.

The Effects are a Swelling of the Legs at Night by Degrees, still rising higher; likewise a Swelling of the Belly increasing; but in a Tympany, founding and tense like a Drum; sometimes the Sensation and Noise of fluctuating Water; Shortness of Breath; Thirst; Urine in too small a Quantity; no Sweat; the stagnating *Serum* at last turns acrimonious, exulcerates and putrefies the Bowels, producing most dismal Symptoms.

The best Cautions and Rules of Diet may be drawn from the Enumeration of these Causes and Effects; for the Intentions to be pursued are in removing the Causes, as Obstructions, dissolving the Viscidity or Glewyness of the Serum, and discharging it out of the Body.

The Viscidity of the Serum is best corrected by such Things as contain abundance of alkaline and volatile Salts, Spices, acrimonious pungent Vegetables, soapy Substances; and what has been prescrib'd in a phlegmatick Constitution, Part II. which see.

The

The only Contradiction in this is, too great Heat and Thirst, to which Attention is to be given, and indicates the Use of *Acids*, Juice of Lemons and Oranges, Sorrel, &c. And it may be taken for a general Rule, that when the Urine is high-colour'd *Acids* are proper, for they are contrary to that *alkalescent* State of the Humours, and resist the Putrefaction, which is the Product of acrimonious Serum.

Their Drink should be sparing; but as the Thirst is sometimes insufferable, the Patient may be indulged the free Use of Spaw-water and Rhenish Wine: And the Aliment should be dry and diuretick; but Diureticks of the acid Kind are the best: Strong Frictions of the Skin are very beneficial, which attenuate and promote the Circulation of the stagnating Serum or Water.

Vomiting in strong Constitutions has proved oftentimes very effectual; because the Concussion of the solid Parts dissolves and expells the stagnating Humours; and likewise Glysters of sharp and purgative Ingredients are very beneficial.

Smart Purges are useful to carry off the Waters; but they should not consist of Volatiles, because such dissolve the Blood, which is pernicious. Abstinence from Drink is very beneficial, and eating dry Biscuit, which creates no Thirst; likewise strong Frictions four or five Times a Day.

When the Waters are carried off, the Diet ought to be such as strengthens the solid Parts,

allowing Spices and generous Wine, but especially the Use of *Chalybeat* Waters, dry Food, and astringent Vegetables, Exercise, especially Riding; and in general, such a Diet as generates good Blood.

When the Serum stagnates long, it turns acrimonious, and commonly renders the Patient feverish and thirsty; then acid or sour Things are properest, both to prevent and cure these Symptoms, as they are specifically proper against that *alkaline* Putrefaction. For a more circumstantial and accurate Account of this Distemper and its Cure in every Particular, consult the learned *Boerhaave's Aphorisms* upon it.

Of the Gout.

This Distemper is a very painful Illness, seated principally in and about the Ligaments of the Bones of the Foot and its Joints, seizing Persons most commonly in the Spring and Autumn; which when undisturbed commonly runs its own natural Stage, and is usually the Companion of People of the middle Age, of the Male Sex, Men of acute and deep Sense, who exercise the same much, and study late by Nights, such as lead a voluptuous and debauched Life, and at Night drink great Quantities of Wine or spirituous Liquors: Such as have been much addicted to Venery in their younger and unripe Years; large plethorick Men; such as are much used to
Acids,

Acids, and cool their sweaty Feet too suddenly; sweat in wet Stockings or Shoes; hence such as do hunt or ride much in cold Weather; and finally, such as have it by Inheritance from Parents, or lie much with gouty People.

This Distemper may affect any membranous Part, but commonly those which are the most remote from the Brain and Heart, where the Motion of the Fluids is the slowest, the Resistance, Friction, and Stricture of the solid Parts the greatest, and Sensation of Pain by the Obstruction of the small Vessels and Dilaceration of the nervous Fibres extreme.

The most common Seat of it is in the Foot, its Tendons, Nerves, Membranes, Ligaments and Periosteum, or Membranes investing the Bones. The Patient immediately is sensible of a stretching, tearing, straitening Pain, gradually increasing and decreasing again, with a Moistness, Redness, Tumor, ending with a breathing Sweat, an Itching, furfuraceous Skinning, or changing into a chalky Substance, which breaks the Vessels.

By all which it appears, that the proximate Cause of this Disease is a vitiated Temper of the least, and consequently the nervous Vessels in the Body; and also of the Liquid which waters those nervous Parts; and moreover, that this Liquid here is defective by its *Acrimony*, and by its great Viscidity, and the solid Vessels by too great Rigidity and Narrowness:

rownness: Whence it shews itself in Parts the most remote from the Brain, as resisting Motion the most, because of their Solidity, Hardness, Exercise, and Weight incumbent upon them. Now the immediate Origin of this Defect is from an Indigestion of the Bowels, which do not sufficiently attenuate or assimilate the Aliment into a Substance fit to supply the Nerves with Juices proper for them, which require a most elaborate Concoction.

The Cure therefore is impossible, unless wrought by such Medicines as are able to mend these Defects entirely. So that the Gout has hitherto been reputed incurable by Antients as well as Moderns, if except a few *Quacks* and boasting *Empiricks* in all Ages.

From the same may be known, that Bleeding does not reach either the Matter, Seat, or Cause of the Disease: yet that same is sometimes found not only beneficial, but also necessary to cause a Revulsion, and lessen the most urgent inflammatory Symptoms that often attend it.

As one of the Causes of the Gout is the Suppression of Sweat and *Perspiration*, so the procuring a due Degree of these seems to be the best Preventative of it; and if the Feet could be made to sweat in due time, it would prevent the Gout, which invades in such Constitutions of the Air as suppress *Perspiration*.

Violent

Violent Purges in the Absence of the Fit, by agitating the Humours too much, often hurt, and may draw the Gout into the Stomach if given during the Paroxysm.

The best Diet is Abstinence from all manner of *Acids*, high Sauces, and Gluttony; the moderate use of such things as promote *Perspiration*, as aromattick Substances with volatile Salts, which relieve Gouty People, by rendering the Body perspirable; diluting Liquors, taken in such a Degree as not to injure the Stomach or Bowels, Moderation in Food of a nourishing light Sort, that is easily digested, as likewise in the use of strong Liquors; Exercise without Fatigue, such as Riding constantly in a pure, open Country Air, and Frictions and Motions of the Parts often repeated; going to Bed early, and lying long in the Morning.

It will be likewise necessary to restore the lost Vigour in the Bowels, by carrying off the corrupted Liquid flowing yet in the Vessels, or stagnating in the Places already assign'd. To the first relates the Use of aromattick, bitter, antiscorbutick Plants, and chiefly the Juice with a little Honey; the use of lixivious fix'd Salts taken in small Doses, and often repeated for a long time together, observing at the same time the Diet as above directed. To the second (that is, the stagnating of the Humours) will be useful, *i. Volatile Salts* long taken and in small Quantities, in the Morning sometime before rising, with

with a large Draught of some softening Apozem, and thereby promoting a gentle breathing Sweat for about an Hour together. 2. Warm Frictions with dry Cloths. 3. Repeated Doses from time to time of such Medicines as purge serous or watery Humours, taking a gentle opiate Draught the same Night.

In the Fit of the Gout, as temperate and as cool and diluent a Diet as the Patient can bear, abstaining from Opiates, except when the morbid Matter is separating, otherwise the constant Use of them is injurious; keeping the affected Part warm without the Application of Plasters, or Cataplasms; for even such as are emollient, weaken and relax too much.

It will be of the greatest Importance to know if any Disease proceeds from a Translocation of the gouty Matter; for the Methods, especially Evacuations, used in an original Distemper, would be very improper in a gouty Case, where the Intention must be to draw the Gout down to the Feet by Blisters applied to the Thighs or Legs, and acrid inflammatory Cataplasms and Plasters.

If a Person subject to the Gout, (except he has Chalk Stones) can bring himself entirely to a Milk Diet, he may by that means so change the whole Mass of the Juices of his Body, as to eradicate the Distemper.

The Effects of Riding. The *English Hippocrates*, Sydenham, in recommending Riding in the Cure of this Distemper, says, that if a Medicine could be known to any one,

one, and he could conceal it, that would be as effectual for the curing this Distemper as Riding on Horseback is; and not only here, but in most other chronical Diseases, he might get immense Riches by it.

And Dr. Lister likewise says, that one single Golden Rule of Ab-
The Effects of Abstinence.
 stinence pleases me beyond all things, *Parva cibatio summæ Curæ sit*, viz. Beware not to eat and drink too much, which is a thing every one ought to regard who has his Health at Heart; and this Abstinence is in all People's Power, in whatever State or Condition they are in, to be substituted instead of Exercise, when they have even lost the Use of their Feet.

Of the Rheumatism.

This is a Distemper ally'd to the *Gout* and *Scurvy*, and is common in all the Northern Parts of *Europe*.

Such are most subject to this Disease as are of a sanguine Con-
Diagnosticks.
 stitution, infected with some *acrimonious* Defect, manly Age, plentiful Living, a sudden Cooling of a heated Body, Spring and Fall, *Perspiration* interrupted, an inflammatory Disposition, but appearing slower than in a Pleurisy. It begins with a continual Fever, causes a most terrible tearing Pain, increasing cruelly upon the least Motion, long continu'd and fix'd in one Place, seizing the Joints of
 any

any Limbs, but most particularly troublesome to the Knees, Loins, and Rump-bone, tormenting and invading sometimes the Brain, Lungs and Bowels, with a Tumor and Redness of the Place, going off and returning again by Fits.

The proximate Cause.

The immediate Cause of this Distemper seems to be an Inflammation in the serous part of the Blood affecting the *lymphatick Arteries*, and for that Reason affecting those Parts where the Vessels are the smallest, but not fierce enough to change it into an Impostumation. The Blood, as in other inflammatory Cases, is fizy, the *alkalescent Salts* in the Serum abounding with coreaceous or leathery Concretions.

The Cure.

The Cure consists in repeated Bleedings, cooling, repeated Purges, always allaying the Pain those Nights after purging with gentle Opiates join'd with mild Sudorificks, bathing in warm Water, and Fomentations apply'd to the Parts, and Blisters when it is obstinately fix'd in one Place.

As for the Diet, it must be cooling, diluting, and chiefly Vegetable. The constant Use of Whey is most effectual in this Disease; likewise a Milk Diet for changing the saline Constitution of the Serum of the Blood, is very useful and proper.

Cream of Tartar taken either in Whey or Water-Gruel, for several Days together, will abate the Pains and Swellings considerably,
by

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by its *Acidity* correcting the *alkaline Salts*
in the Blood.

Of the Gravel and Stone.

When any insoluble Matter stops in any Part of the Body, it gathers a Crust about it, which may grow into a Stone or stony Matter in any Part of a human Body; as a small Drop of concreted Blood may grow to be a Stone; for by the Evaporation of the most fluid Parts it grows hard, and by Attraction of new Matter it increases in Bulk.

When these stony Concretions happen in the Kidneys, and are expell'd, or drop into the *Ureters*, they produce what is called Gravel; when they lodge and stick in the Body of the Kidneys, and grow to such a Bulk as not to drop into the *Pelvis*, or pass by the *Ureters* into the Bladder, they make the Stone in the Kidneys. But these Concretions happen generally in the Kidneys and Bladder; and it is very certain, that if the *Tartar* and other Contents of the Urine were not constantly discharg'd, such Concretions would happen to all Mankind; for the Urine of most sound Persons being inspected after it has stood a while with a *Microscope*, will discover a black Speck in it, which is Sand; and wherever this Sand sticks, it grows still bigger by the Apposition of new Matter.

The

The chief Signs or Symptoms of a Stone in the Kidneys are a fix'd Pain in the Region of the Loins, continually heavy like a Weight in the Substance of the Kidneys, with a kind of Numbness in the Part; but the Stone passing out of the *Pelvis* or Basin of the Kidneys into the Ureters, a most tormenting Pain follows, of all the most severe; an Inflexibility of the Back Bone, by the Extension and Compression of the Nerves; a burning Heat in the Loins, a Numbness of the Leg of the same Side, by means of the Nerves being affected; a Retraction of the Testicle for the same Reason; the Urine either bloody, upon any sudden Jolt or violent Motion, or thin and watry, and little in Quantity; but after the Stone is fallen into the Bladder, the Urine presently becomes very thick, turbid, blackish, and in great Quantity. Fleshy Filaments, or Matter voided by Urine, are suspicious Symptoms of a Stone in the Kidneys, especially if the Patient has been subject to voiding of Gravel.

The Symptoms of a Stone in the Bladder, are, a Titillation about the Neck of the Bladder, and Parts thereabouts; a Sense of Weight in the lower Belly under the Share-bone, and the Region of the Groin; a perpetual Desire of making Water, with a great Pain, especially upon any sudden Motion, which causes a Concussion of the Bladder, a Dribbling difficultly, and a sudden Suppression of Urine by the Stone's stopping the Orifice of the Bladder,

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Bladder, attended with great needing to go to Stool, and a burning Pain in the *Urethra*; sometimes a white *Mucus* or Slime in the Urine; this may happen without a Stone in the Bladder: But the most certain Sign of all is, when it can be most certainly felt with the Finger *in Ano*, or by a *Catheter*.

The Regimen in the Cure of the Stone in the Kidneys, is, by diluting and soft Diureticks, both medicinal and dietetical, to try to expel it, if it is small enough to pass; but if it is brittle, it will often crumble and pass in the form of Gravel by those Means: If the Stone is too big to pass, nor will not crumble, the only Method is to come to a sort of Composition or Truce with it, and use a cooling and diluting Diet constantly, to hinder, as far as possible, its Increase; to use Diureticks that resolve gently, as Parsley, Fennel, Scorzonera, Mallows, Tea, Dandelion, Cichory, Sassafras, Oats, Barley, Honey, Vinegar and Honey; likewise nitrous Salts, and dulcify'd Spirit of Nitre; but the most soft and cooling Diluent of all is Whey, and the Emollients are Decoctions of Marshmallows and Linseed-Tea.

Bathing in warm Water, and Glysters, are proper; seasoning the Food with Sea-salt moderately will not be amiss, for the moderate use of it is resolving and diuretick; and the Belly, in all Cases of the Stone, should be kept lax and open. In a confirm'd Stone in the Kidneys violent Exercise or Motion is dangerous.

*Stimulating
Things not
proper in the
Beginning.*

While the Stone is passing, we should avoid the Use of all forcing and stimulating Things at first; but relaxing and lubricating the Passages, and quieting the spasmodick Disorders by Opiates, is by far the safest and best Method; and where Bathing cannot be performed, Ox-bladders, half full of warm Water, constantly apply'd to the Part affected, may be very usefully substituted; and Bleeding takes off the Tension and prevents an Inflammation better than any Thing, and is therefore very necessary, especially when the Symptoms are urging and violent: When the Parts are sufficiently relaxed, forcing Diureticks joined with Opiates will be properly given.

The best Way to prevent the Generating of a Stone, is to keep the Body open by Whey, Broth, and a liquid Diet, especially for all such as are troubled with Gravel.

When the Stone is fallen into the Bladder, all Endeavours must be used to make it pass as soon as possible, otherwise if it should happen to continue there long, it would in Time become a large Stone, which nothing but the Operation could cure.

If all the Symptoms abate without finding the Stone, it is not certain that it remains still in the Bladder, because a very small Stone may pass by Urine insensibly; and if the Stone has passed, it is not certain that the Affair is over, for there are often more Stones remaining, and therefore the usual Remedies ought not to be discontinued.

When

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When the Stone stops in the *Urethra*, emollient Fomentations ought to be apply'd to the Parts, and Oil injected; or in Case of Extremity, an Instrument with a Cavity in it, dipt in Oil, may extract the Stone.

Irritations in the Membranes of the Bladder, occasioned by a Stone, may be mitigated very much by an Injection of Linseed Oil, or that of Sweet Almonds into the Bladder.



C H A P. V.

*Of the Nature and Use of BATHING
and FRICTIONS.*

BATHING being either hot or cold, it will be necessary to enquire a little into the Nature of it, and what Alterations it produces in human Bodies, in order to know in what Cases and Constitutions the Use of it may be either beneficial or hurtful. Therefore I shall begin with Cold-Bathing, which was in the greatest Esteem with the *Egyptians, Jews, Greeks and Romans*, as evidently appears by the Account given thereof in the Writings of *Hippocrates, Galen, Suetonius, Seneca, Pliny, Oribassius, Celsus, Ægineta*, and others, needless to make mention of in this Place: But they who require to be fully satisfied as to that Point, may peruse *Floyer* and *Baynard* on Cold-Bathing, wherein they will likewise find a great many Instances of surprising Cures performed by Cold-Bathing

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in Rheumatisms, Palsies, Scurvies, Cachexies,
Epilepsies, Gout, and Rickets, &c.

It is experimentally known, that Cold contracts the Fibres, as I have observed, in treating of the Qualities of Air, pag. 104. and the more suddenly it is applied to our Bodies, the more violently it operates : It has been likewise observed, pag. 87. that our Bodies undergo various Changes by the Alterations of the Pressure of the Air, in its Weight and Elasticity : Now if we consider that Water is 800 Times heavier than Air, what Alterations must we not then expect and be sensible of upon bathing or plunging all over into cold Water ? For the Cold and Weight of the Water and Atmosphere acting all together, must consequently first brace up and straiten the Fibres and Vessels considerably in the Surface of the Body, and those Parts adjoining to it, and those at the Center the least and latest ; so that the Blood will be forced in great Plenty upon the *Viscera* or Bowels, where there is the least Resistance : for which Reason it is never safe for those to bath who have weak or ulcerated Bowels, without endangering Life.

But those Ends which are compassed by a greater Weight or Pressure, are more effectually obtained by whatever encreases the Weight of the Water, or contracts the Fibres of the Body : Thus Sea-Water, by reason of the Salt it contains, is heavier and more preferable ; upon which Account all the Humours in the Body must be propell'd
with

with greater Force thro' the Vessels in which they circulate. Besides, the Tension of the Fibres being greater, their Vibration will be both quicker and stronger ; so that the Blood and Spirits will not only move more swiftly through the Vessels, but also be much more ground and broken, digested and rendered fitter to pass the Glands and small Vessels : Moreover, as the Immersion into the Cold Bath mightily encreases the Blood in the Brain and *Viscera*, being forced thither where there is the least Resistance, whereby the Quantity of animal Spirits, of Urine, of Gall, of the pancreatick Juice, and of all other Secretions, will be very much encreas'd, these Humours being thrust forwards with greater Celerity, will probably remove any Obstruction that is not too long fixed and obstinate ; for which Reasons, if we would have the Blood dissolved, or any viscid Matter adhering to the Sides of the Vessels removed, or the Glands deterged, or a greater Quantity of Spirits secreted, and moved with greater Celerity thro' the Nerves, or would force Urine, or remove Obstructions in the Liver, Spleen, pancreatick and mesenterick Glands, if they are not grown too obstinate (in which Case it is very dangerous) we should order Cold-bathing. In fine, whatever is to be effected by bracing the Solids, invigorating and quickening their Vibrations, and accelerating the Blood's Motion, is with Certainty to be had from the Use of Cold-bathing.

All Diseases therefore from a viscid Blood,

and a Lensor in the animal Juices (if the Elasticity of the Vessels is not worn out with Age and Debauches) will find Relief from this Practice. Besides, whatever Inconveniences proceed from a bad Perspiration, or when Humours are thrown upon the Surface of the Body, which cannot get through the Skin, this Method will relieve; for upon Immersion the whole nervous System is so shook, that the very Capillaries feel the Influence, and the minutest Passages are forced open by an encreased Velocity of the circulating Fluids, whereby the Skin will be cleared, and instead of retaining gross and acrimonious Humours in the cuticular Glands, will promote insensible Perspiration; and this is the Reason why People are so brisk and chearful after Bathing.

And it is for the Reasons already given, that Cold-Bathing is proper in most cutaneous Diseases, Scurvies, Leprosy, Elephantiasis, Rheumatisms, Lameness, Sciatica, Melancholy, Madness; some Palsies, Cachexies, Icteric and Hydropic Cases, before the Distempers be too far advanced; it likewise stops Hæmorrhages, Gleets, Fluor Albus; and cures also venereal Impotency and nervous Disorders.

*Necessary Rules
to be observed
before Cold-
Bathing.*

1. To Bleed and Purge, and use such proper Diet and Medicines, both before and after Bathing, as your Physician knows to be suitable to your Disease and Constitution.
2. Not to bathe when hot and sweating, but cool; and not to stay in the Bath above

two

two or three Minutes, as the Patient can bear it; and to go in and out immediately, on the first Bathing, after an Immersion of the whole Body, because staying in too long would relax the Solids too much, instead of contracting and strengthening them.

3. To use the Cold-Bath before Dinner fasting, or in the Afternoon towards Four or Five o'Clock: It is dangerous to go in after great Drinking, or a full Stomach.

4. To use Sweating with Cold-Bathing in Palsies, Rickets, and several Diseases affecting the Nerves with Obstructions.

5. In Windiness or Siziness of the Humours, no Sweating is necessary, nor where Bathing is used for the Preservation of Health, or the invigorating of the animal Spirits.

6. Jumping in precipitantly, or throwing the Head foremost into the Cold-Bath, gives too violent a shock to Nature, and endangers too much the bursting some of the smaller Vessels; therefore the best Way is, holding by the Rope, to walk down the Steps as fast as one can, and when got to the Bottom, bending the Hams to shorten their Length, so as to bring their Heads a good Way under Water, and then popping up again to take Breath; and thus alternately for two or three Times, and out again, rubbing themselves very well with a dry Cloth, before they are dress'd.

They who have weak or little Heat, and are much decay'd, ought not to venture on Cold Bathing; nor they who are intemperate, and have

*Wherein
Cold Bath-
ing is inju-
rious.*

eat extraordinarily ; because the Distribution and Consumption of an abundant Chyle being thereby stopp'd, must occasion Fevers or Defluxions.

If the Spirits are depress'd by Looseness, Vomiting, Venery, Watching, or any other Evacuation, we cannot well bear Cold Bathing ; for the Spirits being weak, will be overcome by its Chilness.

In the Fits of the Gout, Epilepsy, and in Inflammations of the Lungs or inward Parts, and in the Beginning of putrid Fevers, Iliac Passions, and the Gripes, Colicks, and during any Defluxion, Cold Baths are improper ; for they hinder Expectoration, repell Pains, promote the present Defluxions, Fluxes, and Pains ; but when these acute Diseases, or chronical Pains and Defluxions are ended, it may be safe ; and it is certain that Gout Pains are prevented by Cold Baths, and using to wash the Feet.

Corpulency, unsound Viscera or Bowels, and inveterate Obstructions, forbid the Use of Cold Bathing ; for first, in very fat Persons the Fibres are so stuffed round that they have not Room to vibrate or contract with the sudden Squeeze of the Bath ; and in unsound Viscera, or where any Part is much weaker than the rest, such an additional Force will press the Fluids upon that, very much to its Detriment, which may be either the bursting of the Vessels, or promoting the Discharge of some ill Humours upon that Part, which might otherwise drain somewhere else. In

inveterate Obstructions it is likewise improper, because the more violently the Fluids are propelled, the more the Obstructions will be riveted and lock'd in.

As the Pressure of Water is rendered more effectual by Cold, so its relaxing Power is augmented by a moderate Warmth; for a gentle Heat always relaxes the Fibres of our Body, it being pleasing and agreeable to the Sense of Feeling. So that when we would have the Benefit of universal Relaxation, we ought to use a temperate Bath, which has only a mild Heat, like that of our Bodies, and is therefore less beneficial to cold Diseases, and less injurious to the Healthful, who use it chiefly to wash their Bodies, to temper the Natural Heat, and to take off Weariness.

*The Use
of Warm
Baths.*

But temperate Baths have many physical Uses besides Cleanliness and Pleasure, and are observed to be beneficial in the following Cases.

Tepid Baths moisten and warm; but if more hot, they heat and moisten less; they likewise open the Pores and promote a free Perspiration, and are proper in most Eruptions and Foulnesses of the Skin, especially where the Obstructions will not yield to the Cold Bath; for they not only relax the Pores, but likewise dilute the obstructed Matter at the same time, in being absorbed by the cuticular Vessels.

Warm Baths are proper in most scorbutick Habits, Sciatica, Rheumatism, Colicks, Gravel,

Gravel, Costiveness, Gripes, Stiffness of the Joints and Muscles, and in most Cases proceeding from an obstructed Perspiration.

Temperate Baths are useful in all hot Intemperies, and are likewise proper in the bilious, viscid, or acrimonious State of the Blood: But they are injurious in Fevers, Inflammations, and in all acute Diseases, especially before the Concoction of the Humours.

In using the Warm Bath, the Diet in general should be easy of Digestion, thin and diluting, and in many Cases sweating in Bed after warm Bathing is necessary; but in this and in other Circumstances which may occur, the Patient is to consult his Physician.

The naturally hot Mineral Baths, such as that famous one at *Bath* in *Somersetshire*, are much more powerful in curing Diseases and removing Obstructions, than the Artificial; the Waters of the former being impregnated with balsamic, volatile, stimulating, and sub-astringent Particles, which the last can never have by any Art or Contrivance whatever.

These natural hot Mineral Waters are like a Fomentation, which both supple and strengthens the Parts of the Body all over at once, and by gently shaking and undulating the Fibres, helps forward the vital Motions, which are ready to be at a Stand. In old Pains and Aches, which have been the Remains of nervous Distempers, and where some particular Part continues contracted, or has any Humours fix'd upon it, which it cannot dislodge, these Waters pump'd upon it hot
from

from the Spring, do more towards a Cure than all the most efficacious Compositions of Medicines.

Bathing all over in these Springs cannot but wonderfully open that almost infinite Number of secretory Orifices upon the Surface of the Body, and clear the cutaneous Ducts of the Matter which is apt to stick in them; by the opening of which *Spiracula* the Fluids of the whole Body have more Room to move in, and have proper Vents to reack out a great deal, which is of great Service to the *Oeconomy* to get rid of.

These small Sulphur-Fountains likewise inwardly taken, to Astonishment warm and strengthen a decay'd Stomach, especially if relax'd and worn out almost with Luxury and Debauches: The most grievous Nauseas and Vomitings from these Causes have been removed by them: For they both soften again with proper Moisture the Fibres which have been render'd incapable to vibrate, by the Use of hot, burning, spirituous Liquors, and at the same time draw them into greater Tensity; as a Cord which relaxes with over-drying, fills up and straitens upon the Contact and Attraction of a convenient Moisture.

The small Share of fine Salt which likewise attends, and is as it were wrapped up in the Particles of Sulphur, cannot but contribute somewhat in restoring the Tone of such decay'd Parts. But besides the Benefit these do to the Stomach, they also carry along with them into the most remote Recesses of the
Body

Body, a Balsamic of Nature's own Preparation ; whereby such Decays in the Stomach, or in any of the Viscera or Bowels, from Abscesses, Ulcerations, or any like Causes, are with great Success reliev'd ; and particularly if they be of the Kidneys and Urinary Passages, because they wash through them in more plenty, than where they come by the ordinary Course of Circulation.

Of Frictions.

Friction, or Rubbing with a Flesh-Brush, Cloth, Hand, &c. is, as it were, an alternate Compression and Relaxation of the Parts of the Body. A gentle Friction only compresses the Veins ; but by a stronger Degree, the Arteries are also compressed. By compressing the Veins by Friction, the Motion of the viscous Blood to the Heart is accelerated ; hence the Motion of the Heart is roused : By which Means, the Blood is with greater Velocity propell'd through all the Vessels. The *vital Force* may, therefore, be augmented to any Degree, by means of Frictions, without giving any Medicine internally ; for by means of Frictions a burning Fever may be excited in the most dropical Patients.

In those Bodies where almost all the Organs of Digestion are so languid, as not duly to perform their respective Functions, Frictions with rough woolen Cloths over the whole *Abdomen*, or Belly, when the Patient is fasting, have been found to produce surprisingly happy Effects. Hence the Ancients had

had Frictions in so great Veneration, not only for the Preservation of Health, but also for the Cure of Diseases, that the *Grecians, Arabians, Romans, and Egyptians* in general constantly practised that Method; and *Galen* wrote a whole Book, intitled *de Frictionibus*. *Celsus* likewise recommends the Usefulness of Frictions in his Works: But this Practice has been almost neglected among the Moderns till of late, and is now reviv'd again with no less Success than in former Days, tho' not so general; for it is experimentally known, that it will strengthen weak Limbs, and bring Nourishment to the Parts, and likewise cure the Rickets in Children, especially if Cold Bathing be used.

Therefore I would recommend to all Mothers and Nurses, to rub the Back, Sides, Shoulders, Hips, and Limbs of their Children by a warm Fire Night and Morning, being very necessary to prevent Obstructions and Rickets, and to promote their Growth and Activity; and likewise to preserve their Limbs strong and straight.

By Frictions a free and full Circulation and Perspiration may be usefully promoted; and this is performed by assisting Nature to throw off by Perspiration the Vapours and Recrements of the third Concoction, which are often retained and pent in between the Scales of the Scarf-skin, as likewise in the Interstices of the outward Muscles and Membranes of the Body; so that by the Use of Frictions Nature is not only assisted in discharging by insensible Per-

Perspiration those excrementitious Particles, which frequently hinder a full and free Circulation, but likewise Blood and Spirits are thereby attracted to those Parts most remote from the Seat of Heat and Motion, by which Means also the natural Heat is increased, and the superficial Muscles are render'd plump and strong.

Hence it is evident, that ancient People, and such as have weak Nerves and lead a sedentary Life, especially those who are subject to Numbness, Weakness, or Obstructions in their Joints, or are threaten'd with paralytick Disorders, in order to supply the Want of Exercise of other Kinds, ought to have their whole Bodies, more particularly their Limbs, rubbed for half an Hour every Morning especially, and at Night, with a Flesh-Brush, Flannel, or Napkin, till the Parts begin to grow red and warm. The Friction should be made first on the Arms, Hands, Feet, Legs, and Thighs, from whence we ought to proceed to the Shoulders, Back, and Breast; and the Head should be rubb'd the last of all.

Among the Ancients there were Frictions of various Kinds, and subservient to different Purposes. Hence *Hippocrates* in his Treatise *De Med. Offic.* tells us, 'That Friction may
' resolve, contract, incarn, diminish: Since
' strong Frictions contract, gentle Friction
' resolves, much Friction diminishes; and
' moderate Friction condenses.' Any Part of the Body is render'd more lax, by being rubbed with soft oleous Substances.

Nothing

Nothing is more beneficial in curing a Weakness of the Fibres, than Frictions with rough warm woolen Cloths, especially if previously impregnated with the Smoke of burning Amber, or Mastick, that at the same time this aromattick and corroborating Steam may enter the relaxed Parts. But we are to proceed gradually in this Work, and not to use too strong Frictions at first; lest either the stagnated Fluids in the preternaturally distended Vessels should be too copiously convey'd to the Heart, and by that Means overwhelm and suffocate it; or the tender Vessels should be broken by imprudently increasing the Motion of the Blood.

When the Ancients wanted to reduce extenuated Parts to their natural Situation, they stimulated and irritated these Parts so as to produce a gentle Inflammation and Swelling; for by this Means, the Humours being convey'd with a greater *Impetus* and a brisker Motion to the Parts, they distended the too rigid Vessels proportionably the more. By often repeating this Irritation, the too great Strength of the Vessels was so diminished, as to yield to the Humours, which, in order to their good State of Health, must necessarily flow into them.

Thus *Galen*, in the third Chapter of his fifth Book *De Sanitate Tuenda*, informs us, 'That by Frictions with pinguious Substances, he in a few Days restored the Flesh of many, who had been for a long time emaciated.'

Hence Frictions with fat Substances are highly proper in these Cases, but only to such a Degree

Degree as to excite a slight and gentle Redness of the Part ; for when the Friction is violent, that which it attracts to the Part is discussed ; but, in this Case, a large Distension of the too strong Vessels is required.

Galen, in the seventh Chap. of his seventh Book *De Method. Medendi.* gives this Caution in the following Words : ‘ When, says he, we
‘ intend to produce Flesh on any Part, we are
‘ by Friction to heat it, so as to render it tu-
‘ mid ; but, when we intend to discuss and
‘ evacuate, this Friction and Heat are to be
‘ continued till the tumid Part subsides.’

And in the sixteenth Chapter of his fourth Book *De Method. Medendi*, he tells us ;
‘ That it was customary with some to strike
‘ emaciated Parts with slender Rods, slightly
‘ anointed, till the Parts became moderately
‘ tumid.’ He also informs us, that by such a Percussion repeated daily, or every other Day, together with a moderate Friction or Stimulus, the diminutive and extenuated Buttocks of Children were wonderfully enlarged.

Hence the Reason is obvious, why Friction sometimes produces opposite Effects ; for a strong Friction with rough dry woollen Cloths, especially when impregnated with the Fumes of kindled Aromatics, as I have observed before, cures too weak Fibres ; whereas a gentle Friction with pinguious Substances, by attracting the Humours, and relaxing the Solids, softens too rigid Fibres.

